CHAPTER 2: Waste Management

Introduction

Michigan lithographic printers usually generate three types of waste—solid, liquid industrial, and hazardous. Your legal responsibility as a generator of any quantity of waste extends from "cradle to grave." This covers the time from when the waste was first generated through its ultimate disposal. State and federal court decisions have consistently held that legal liability remains with the original generator; in some instances, even after disposal of the waste. Generators held responsible for the waste may have to pay environmental fines as well as damages awarded in lawsuits filed by individuals.

Several different agencies are involved with overseeing proper waste management. These include the Waste and Hazardous Materials Division (WHMD), Water Division (WD), and Air Quality Division (AQD) of the Michigan Department of Environmental Quality (MDEQ); the Michigan Department of Consumer and Industry Services (CIS); and the Michigan State Police (MSP); the U.S. Environmental Protection Agency (USEPA); the U.S. Department of Transportation (USDOT). In addition, local entities including wastewater treatment plant authorities, local fire departments, and county health departments may have jurisdiction.

You might find it difficult to understand which waste regulations apply specifically to your business. It is recommended that you contact the appropriate Waste and Hazardous Materials Division district office staff (see Appendix C) or your environmental consultant for help after reading this chapter. Chapter 2 explains the *general* waste management requirements for lithographic printers.

All waste generators, except households, are required by law to determine if any of their waste is hazardous waste. Your business must keep records of its waste evaluations and other information used to determine what type of waste you have. These records must be kept at least three years after the waste was shipped for treatment, storage or disposal.

If you determine your waste is a solid waste which is not hazardous, its disposal is regulated under ***Part 115*** of the ***Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451)***.

In This Chapter . . .

2.1 Solid Waste
2.2 Liquid Industrial Waste
2.3 Hazardous Waste
2.4 Where To Go For Help

If you determine the waste is a liquid industrial waste, you should decide whether to treat the waste on-site or have the waste hauled off-site for treatment and disposal. If you decide to treat the waste on-site, ***Part 31 of Act 451*** regulates discharges to the waters of the state. If you decide to have the waste hauled off-site, then it must be managed in accordance with ***Part 121 of Act 451*** and ***Michigan's Public Act 138 of 1998***.

If you determine that you have hazardous waste, you must properly handle it according to ***Part 111 of Act 451*** and the federal ***Resource Conservation and Recovery Act (RCRA)*** regulations located in ***Title 40, Parts 260*** through ***279 of the Code of Federal Regulations (40 CFR, Parts 260-279)***. Michigan hazardous waste regulations contain some requirements more stringent than the federal regulations. In Michigan, the WHMD has been delegated the authority to implement most of the ***RCRA*** program regulating hazardous waste.

Hazardous material and waste shipping requirements are included in the ***U.S. Department of Transportation Regulations*** under ***Title 49, Parts 172, 173, 178,*** and ***179*** of the ***Code of Federal Regulations (49 CFR, Parts 171, 172, 173, 178 and 179)*** and ***Michigan's Public Act 138 of 1998***. In addition, ***Part 55*** regulates air emissions from landfills and recycling units. PCB materials (also see Chapter 4) and waste are regulated under the federal ***Toxic Substances Control Act, (TSCA)*** and ***Part 147 of Act 451***.

Identifying Wastes and Waste Reduction Opportunities

A business owner or manager can conduct a waste survey to properly identify many types and quantities of waste and determine how to reduce waste generation. A survey also helps to identify waste streams that may be a regulated hazardous waste (see Chapter 2.3 for more information). When you conduct your waste survey:

1. Tour your whole company and ask your employees questions about what is being done and what is being generated as waste. Ask them for their suggestions about how waste could be reduced. Consider the wastes likely being generated from activities such as:

    - Imaging operations (film, paper, developer, fixer, wash water, and cleaning solutions);
    - Platemaking (plates, rinse water, and developer);
    - Printing (fountain solution, ink, paper, cleaning solutions, rags, containers, and air emissions);
    - Finishing (reject prints, trimmings, adhesives, and shipping boxes);
    - Building and grounds maintenance (such as replacing disposable filters, painting buildings, changing light bulbs, using floor cleaners, pesticides, fertilizers and insecticides); and
    - Office activities (such as changing toners used in your copiers and computer printers).

2. Trace all chemical purchases for each step of every process or activity of your business. Consider whether you could substitute materials that would generate less or no hazardous waste.

3. Identify where in-house recovery and reuse of hazardous materials are possible. If you are interested in recycling on-site, check the regulations or discuss with the WHMD district office staff (Appendix C) to be sure that you will not need to be permitted as a hazardous waste treatment facility. Also check with the AQD district office staff (Appendix C) if an air quality permit is necessary for your proposed recycling unit.

4. Observe if employees are creating more hazardous waste by mixing other waste with known hazardous waste. For example, your business could reduce the volume of hazardous waste by avoiding placement of nonhazardous inks in the same container as one holding waste solvents.

5. Determine if different wastes are being mixed together. Doing so will usually make recycling difficult, if not impossible, and disposal more expensive.

If you feel you need help conducting a waste survey, consider using the free, nonregulatory, voluntary waste assessment program available for Michigan businesses with 500 or fewer employees. This program is called the Retired Engineer Technical Assistance Program (RETAP). Call the Environmental Assistance Center at 800-662-9278 and ask to speak with the RETAP coordinator.

MICHIGAN RETAP
RETIRED ENGINEER
TECHNICAL ASSISTANCE PROGRAM

6. Develop and maintain an accurate inventory control of all products. This will help eliminate excessive inventory. Buying in bulk or ordering on a schedule will not save you money if you have to dispose of the product because its shelf life expired.

Once you know where your wastes are being generated, you may be able to reduce your disposal costs by implementing waste reduction and recycling programs at your business. Not only will you save money on disposal costs, you might save money by purchasing less materials and even earn money from selling the collected materials. You need to have both management and worker support to have these programs work.

Waste reduction involves implementing activities which result in less waste being generated. These activities include the following:

- Change printing equipment or processes so that less waste is created.
  - Schedule jobs according to increasing darkness of ink color which reduces solvents being used to clean rollers.
  - Mix colored inks with black ink when possible rather than discarding it.
  - Eliminate the use of chromium-containing fountain solutions to reduce toxicity of spent fountain solutions.
  - Reuse waste paper during make-ready to avoid creating more scrap paper.

  - Limit the number of products or chemicals used in the process.
  - Use automatic cleaning equipment which can often be retrofitted to existing presses and results in less cleaning solvents being used.
  - Consider using electronic prepress or other digital imaging processes which may lead to eliminating film processing.
- Purchase supplies that have less packaging.
- Have materials shipped in returnable and reusable containers.
- Use materials on a “first in, first out” basis so products do not become too old to use.
- Replace disposable materials with reusable and recyclable materials, including items in the employee breakroom such as, ceramic coffee cups instead of polystyrene cups.
- Establish an incentive program which encourages workers to suggest ways to reduce waste.
- Train employees in waste reduction methods.

Recycling consists of removing materials from the waste stream and making them into other usable goods. One step in recycling you can easily do at your business involves the collection of those materials. The collected materials are then marketed through private brokers, local community recycling programs, or directly to recycling companies who utilize the materials in their manufacturing processes. Check with your waste hauler to find out what they accept, how the materials must be prepared, and other collection details. It may be necessary to use different brokers or several different recycling programs to market your collected materials because the individual broker or program might not handle the type or volume of material your facility generates.

Contact the Environmental Assistance Center and request a *Recycled Materials Market Directory* or search the various categories via the MDEQ’s web site (**www.michigan.gov/deq**) to locate companies that accept the materials you collect. If you want to find companies that can use your waste materials or have materials that are not listed in the directory, you may want to list their availability on material exchanges. Request the fact sheet *Material Exchange: Reduce Disposal Costs, Increase Your Profits* for more information or directly access the Recycler’s web site at **www.recycle.net/recycleexch/index.html**. If you do not have access to the Internet, call 800-662-9278 and ask for the recycling coordinator who will help get your materials listed.

Another step in recycling consists of reclaiming materials on-site. For example, printers may consider reclaiming silver from photographic processes and reclaiming cleaning solvents (see Chapter 6.5).

2.1 Solid Waste

Solid waste includes garbage, rubbish, industrial and commercial waste that is not regulated as a hazardous waste. Much of this material can be collected for recycling or reuse. Consider collecting:

- Office paper;
- Trimmings;
- Reject prints;
- Protective paperwraps used on paper reams and webs;

- Scrap film;
- Shrink and bubble wrap;
- Corrugated cardboard and paper cores;
- Wood pallets and unusable web boards; and
- 55-gallon drums or other containers.

The removal of these and other bulky items from the trash can significantly lower solid waste disposal costs because the dumpsters will not fill up as fast. You might also want to determine if you generate enough other materials to make collection of those items worthwhile.

Most yard waste, including that from grounds maintenance, can no longer be disposed of in landfills. Grass clippings, leaves, and brush that is less than two inches in diameter and four feet in length, must be either taken to a composting facility or composted on-site.

No matter how effective your waste reduction and recycling programs are, you probably will still need to dispose of some solid waste. Examples of solid waste that might require disposal include:

- Nonrecyclable office paper;
- Breakroom waste such as discarded food; and
- Packaging materials such as nonrecyclable empty containers (refer to Chapter 2.3.1.c for definition of "empty containers").

Before your solid waste is hauled to a licensed disposal facility, it should be stored in leak-proof covered containers. This will help keep the waste from blowing away, prevent access by rodents and other animals, and reduce odor problems. Although not commonly done, solid waste can be stored in a waste pile but you will probably need to obtain a permit. If you intend to store any waste in a pile, discuss the requirements with your local WHMD district office staff (Appendix C). Local ordinances may also require the dumpsters to be enclosed in a fenced area.

Waste management regulations prohibit *open dumping* of business waste. ***Part 115 of Act 451*** requires that solid waste be disposed of at licensed disposal facilities. You can haul your own waste to a licensed landfill, incinerator, or transfer/processing facility. Another option would be to contract with a solid waste hauler to transport your solid waste to an approved facility. Currently there are no WHMD licensing requirements for haulers of solid waste.

In addition, your county has prepared a *solid waste management plan* which is approved by the MDEQ. This plan identifies where your solid waste can be transported for disposal. If you are considering shipping your solid waste out of your county to another Michigan county, check with your county planning agency or with your local WHMD district office to make sure that it will be going to a county listed in the approved plan. If you have sludge or are uncertain if your waste would be considered solid waste or uncertain how to properly manage it, contact your local WHMD district office (Appendix C) to discuss your disposal options.

Manifests are not required for hauling and disposing of solid waste with the exception of most scrap tires. If you have scrap tires from maintaining a vehicle fleet, a manifest is not needed if tires are being taken by a solid waste hauler transporting less than 25 percent by weight or volume of scrap tires with other solid waste in any truckload. Talk with your WHMD district office for more scrap tire disposal requirements. Although you do not have to manifest solid waste, you might want to keep records of when, where and how much solid waste was removed from your business. This practice will not only give you an accurate record of waste disposal for management purposes, but it will also be valuable if a liability question arises.

Open burning of business waste is prohibited. On-site incineration of some waste may be allowed if the proper equipment is in place and a permit is obtained from the AQD of the MDEQ. For more details on incineration, contact your local AQD district office (Appendix C). If you are doing any landscaping on your property and want to burn the wood waste such as, brush, logs, stumps and trees, you may be able to burn it but first check with your local AQD district office to determine if you are in a permissable burn area. If you are, contact the regulating agency in your area to determine if a burn permit is required. Burning of grass clippings and leaves is also banned in many municipalities. There are many Michigan areas where all open burning is prohibited. The agency regulating open burning depends on where your business is located. You will need to contact the appropriate agency to determine burning regulations that may affect your situation. These agencies include the AQD and WHMD of MDEQ; the Forest Management Division of the Michigan Department of Natural Resources; the U.S. Forest Service; and in many cases, a city, township, or county authority.

2.2 Liquid Industrial Waste

Liquid industrial waste that is not regulated as hazardous waste includes some off-specification commercial chemical product, industrial wastewater, used oil that is being recycled, storm sewer and sanitary sewer clean-out residue, grease trap clean-out residue, and other liquid waste. Two divisions within the MDEQ are involved with the proper management of liquid industrial waste.

The WHMD oversees the *permitting and registering* of liquid industrial waste transporters, and *management* of wastes at generating facilities.

The WD oversees the *discharges of wastewater* into the surface waters and groundwater.

In addition, you must obtain permission from your local publicly owned treatment works before discharging liquid waste to the sewer. This is discussed in more detail in Chapter 3. Chapter 2 only discusses the general requirements regarding liquid industrial wastes.

There are no state time limits or specific container requirements when storing liquid industrial waste at your business. The containers must be kept closed and labeled with their content name, such as “Used Oil” generated from your air compressor or other machinery maintenance.

(See Chapter 2.3.2.g for more used oil requirements.) You must manage the waste in ways that protect the environment. Storage containers must be protected from weather, fire, physical damage, and vandalism. In addition, the exterior of the storage containers and hauling vehicles must be kept free of the liquid waste and its residue. Aboveground storage of flammable and combustible liquid industrial waste is also regulated by the WHMD. See the requirements discussed in Chapter 4. Depending on the waste flashpoint, you may also be regulated by the ***MIOSHA General Industry Safety Standards, Part 75, Flammable and Combustible Liquids***, and the local municipality's fire prevention code (see Chapter 28 for more information).

If you generate liquid industrial waste, you will need to obtain an identification number, use manifests for shipping, and hire a licensed transporter to take the waste to an appropriate disposal facility. Refer to Chapter 2.3.5, 2.3.6, and 2.3.9 for information about these requirements.

2.3 Hazardous Waste

When reading this guidebook, do not confuse the terms *"hazardous waste"* with *"hazardous material."* Each term has specific regulatory definitions and requirements. Hazardous waste shipped with a manifest would also be a USDOT hazardous material. There are some wastes which would not be regulated as a hazardous waste but would be regulated as a hazardous material. The following discusses the general requirements regarding hazardous and universal waste. The specific requirements that you must follow depend upon the quantities of hazardous waste generated within a specific time period at your business. If you have any questions about hazardous waste management, call your WHMD district office staff (Appendix C) to discuss your requirements.

2.3.1 Defining Hazardous Waste

Federal and state regulations define wastes as hazardous if they are either included on specific lists or exhibit certain hazardous characteristics. These wastes have been determined to be a threat to human health or the environment. Hazardous wastes have specific numbers assigned to the different constituents or processes that generate the waste. Depending on the waste, you may have some waste to which several waste numbers apply. Regulations allow businesses the option of handling some waste as a "universal waste" instead of managing them as a hazardous waste. Universal waste management is further discussed in Chapter 2.3.1.d and in the following sections.

2.3.1.a Listed Waste

Listed waste includes waste materials listed by name or generation sources on the federal and Michigan lists of hazardous waste. If listed waste is mixed with other waste, then that mixture is also considered a listed waste under the mixture rule, unless it meets one of the regulatory exemptions (see Chapter 2.3.1.c). You need to know the chemical names, and in some instances, the chemical considerations, for the type of waste produced and/or the process used to determine if it is a listed waste. It is necessary to review the regulations for the complete description of these listed wastes. These wastes have a USEPA or Michigan hazardous waste number which begins or ends with the following letters. These lists include, but are not limited to the following:

WASTE FROM LISTED NONSPECIFIC SOURCES - ALSO REFERRED TO AS THE "F" LIST

Printers primarily have F001-F005 wastes which include spent solvents, but may also have other F code wastes. These include:

Acetone	Cyclohexanone	Methyl Isobutyl Ketone (MIBK)	1,1,1-Trichloroethane
Benzene	2-Ethoxyethanol	Methyl Ethyl Ketone (MEK)	1,1,2-Trichloroethane
n-ButylAlcohol	Ethyl Acetate	Nitrobenzene	Trichloroethylene
Carbon Disulfide	Ethyl Benzene	2-Nitropropane	1,1,2-Trichloro-1,2,2-Trifluoroethane
Carbon Tetrachloride	Ethyl Ether	Ortho-Dichlorobenzene	Trichlorofluoromethane
	Isobutanol	Pyridine	Tetrachloroethylene
Chlorinated Fluorocarbons	Methanol		
	Methylene Chloride	Toluene	Xylene
Chlorobenzene			
Cresols and Cresylic Acid			

WASTE FROM LISTED SPECIFIC SOURCES - ALSO REFERRED TO AS THE "K" LIST

Most printing operations normally do not have K code wastes, but they may have the following:

Ink Formulation	K086	Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps,and stabilizers containing chromium and lead.

DISCARDED COMMERCIAL CHEMICAL PRODUCTS INCLUDING OFF-SPECIFICATION, PAST EXPIRATION DATE, ETC.—ALSO REFERRED TO AS THE "P" AND "U" LISTS

Some of the chemicals used by printing operations would only be a U or P code waste if the waste is a pure or technical grade solution. For example, if you use technical grade toluene for cleaning, this would be a U220 waste if the product was discarded before being used. It would be an F005 waste if it was used before being discarded. If you use a solution that has active ingredients besides toluene, such as a toluene and mineral spirits blend, this waste would not be a U220 waste, but it may be an ignitable D001 or other waste code. Printers normally have P or U code wastes only if disposing of unused or off-spec chemicals, or when cleaning up a spill of these listed chemical products and/or chemical intermediates having the generic names listed.

Acetone	U002	Hydroquinone	070U
Ethylene Thiourea	U116	Lithium	077U
Formaldehyde	U122	Toluene	U220
1,2-Epoxybutane	166U	Xylene	U239

2.3.1.b Characteristic Waste

Characteristic waste exhibiting any of five characteristics identified in the Michigan and federal regulations is also defined as a hazardous waste. These wastes have a USEPA or Michigan hazardous waste number which begins or ends with a “D” or “S”. The five characteristics are:

- *Ignitable* - Starts burning easily; liquid with a flash point below 140 degrees Fahrenheit, solid that spontaneously ignites, or oxidizing material, and ignitable compressed gases that form flammable mixtures in air. Examples include isopropanol, naphtha, methyl isobutyl ketone, mineral spirits, sludged containing petroleum solvents, some inks, and solvent-soaked rags. These wastes have a hazardous waste number of D001.

- *Corrosive* - Liquids that dissolve steel or aqueous wastes with a pH less than or equal to 2.0 or greater than or equal to 12.5. Examples include caustics like alkaline cleaners, plate and film processing chemicals, ammonium hydroxide, hydrochloric acid, nitric acid, phosphoric acid, sodium hydroxide, glacial acetic acid, sulfuric acid, and chromic acid. These wastes have a hazardous waste number of D002.

- *Reactive* - Undergoes rapid or violent chemical reaction and necessitates special handling requirements. Examples include organic peroxides, perchlorates, acetyle chloride, cyanides, sulfides, and explosives. These wastes have a hazardous waste number of D003.

- *Toxic* - Poisonous to humans and other living organisms. Examples include fluorescent lamps, dry cell batteries, various metal-bearing solutions, fixer, plate processing chemicals, solvents, some pesticides, and other organic chemicals. Hazardous waste numbers are assigned to specific materials and include D004 through D043, 001D and 003D. These are sometimes called toxicity characteristic leaching procedure (TCLP) wastes because that is the laboratory method used to detemine the concentration level. These wastes become regulated as a hazardous waste when their constituents meet or exceed a certain concentration level. Examples include silver which has a hazardous waste number of D011 and is regulated as a hazardous waste at a concentration of 5.0 milligrams per liter (mg/l) in the TCLP test. MEK has a waste number of D035 and is regulated at a concentration of 200 mg/l. MEK can also be an “F” waste if it meets any of those regulatory definitions. Please see page 2-11.

- *Severely toxic* - These wastes contain 1.0 ppm or more of a severely toxic material. These materials are regulated at quantities of one kilogram, which is just over two pounds or more. The hazardous waste numbers include 001S through 007S. It is unlikely for most businesses to have severely toxic wastes.

2.3.1.c Exclusions and Exemptions

Some waste streams may meet applicable exclusion and exemption criteria and not be fully regulated as a hazardous waste. These exclusions and exemptions are too numerous to include in their entirety in this publication. The following USEPA resources on the Internet provide more information about exclusions and exemptions: **“RCRA Orientation Manual”** at **www.epa.gov/epaoswer/general/orientat** and the **“RCRA, Superfund, & EPCRA Hotline**

Training Modules" at www.epa.gov/epaoswer/hotline/modules.htm. A few common ones are summarized below. Specific waste management requirements are included in Chapter 2.3.2. Discuss exclusion or exemption questions with your WHMD district office.

Recycling:
Some hazardous waste that is recycled in specific situations is excluded from being regulated as a hazardous waste. These include solvents, oils and filters, lead acid batteries, scrap metal, rags, and other textiles, and spent chlorofluorocarbon refrigerants. More information is provided in Chapter 2.3.2. Additionally, materials that are directly used or reused are not regulated as hazardous waste when they are:

- Used as an ingredient to make a product, without first being reclaimed;
- Used as an effective substitute for commercial chemical product;
- Returned to the original process from which it was generated, without first being reclaimed. However, if the material is reclaimed prior to reuse or is used to produce products that are applied to or placed on the ground or burned for energy recovery, the material and the recycling process are fully regulated.

Empty containers:
Empty containers, liners, and residue from "empty containers" are not subject to the hazardous waste requirements if the following conditions are met:

1. The containers or the inner lining that held nonacute hazardous waste have had as much material removed as possible (by practices commonly used to remove that material such as pouring, pumping, and aspirating), AND the amount of hazardous waste residue is any of the following:

    - One inch or less; OR
    - No more than 3 percent by weight of the total capacity for containers 110 gallons or less in size; OR
    - No more than 0.3 percent by weight of the total capacity for containers over 110 gallons.

2. The containers that held acutely or severely toxic hazardous waste (e.g., waste identified on the "P" or "S" lists and some "F" wastes) have been triple-rinsed using a material capable of removing the product or by another proven cleaning method, or the inner lining that prevented contact of the chemical with the container has been removed from the container.

3. Compressed gas cylinders have been emptied to the point where the pressure in the container approaches atmospheric pressure.

Wastewater discharge:
Wastewater that contains hazardous waste and is discharged through sanitary sewers to publicly owned treatment plants (POTW) is exempt from the hazardous waste regulations at the point of discharge (see Chapter 3.2.1). However, any hazardous waste generation, treatment, or

Table 2.1

CHARACTERISTIC HAZARDOUS WASTES FOR TOXICITY (if waste meets or exceeds the listed concentration)

EPA Hazardous Waste Number	Chemical Abstract Services Number	Material	Extract Concentration milligrams per liter
D004	7440-38-2	Arsenic	5.0
D005	7440-39-3	Barium	100.0
D018	71-43-2	Benzene	0.5
D006	7440-43-9	Cadmium	1.0
D019	56-23-5	Carbon tetrachloride	0.5
D020	57-74-9	Chlordane	0.03
D021	108-90-7	Chlorobenzene	100.0
D022	67-66-3	Chloroform	6.0
D007	7440-47-3	Chromium	5.0
D023	95-48-7	o-Cresol	200.0**
D024	108-39-4	m-Cresol	200.0**
D025	106-44-5	p-Cresol	200.0**
D026	--------	Cresol	200.0**
D016	94-75-7	2,4-D (2,4-Dichlorophenoxyacetic Acid)	10.0
D027	106-46-7	1,4-Dichlorobenzene	7.5
D028	107-06-2	1,2-Dichloroethane	0.5
D029	75-35-4	1,1-Dichloroethylene	0.7
D030	121-14-2	2,4-Dinitrotoluene	0.13*
D012	72-20-8	Endrin (1,2,3,4,10,10-hexachloro-1,7-Epoxy-1,4,4a,5,6,7,8,8a octahydro-1,4-endo, endo-5,8-dimenthano naphthalene)	0.02
D031	76-44-8	Heptachlor (and its Epoxide)	0.008
D032	118-74-1	Hexachlorobenzene	0.13*
D033	87-68-3	Hexachlorobutadiene	0.5
D034	67-72-1	Hexachloroethane	3.0
D008	7439-92-1	Lead	5.0
D013	58-89-9	Lindane (1,2,3,4,5,6-hexa-chlorocyclo-hexane, gamma isomer)	0.4
D009	7439-97-6	Mercury	0.2
D014	72-43-5	Methoxychlor (1,1,1-trichloro-2,2-bis(p-methoxyphenyl)ethane)	10.0
D035	78-93-3	Methyl ethyl ketone	200.0
D036	98-95-3	Nitrobenzene	2.0
D037	87-86-5	Pentachlorophenol	100.0
D038	110-86-1	Pyridine	5.0*
D010	7782-49-2	Selenium	1.0
D011	7440-22-4	Silver	5.0
D039	127-18-4	Tetrachloroethylene	0.7
D015	8001-35-2	Toxaphene ($C_{10}H_{10}C1_8$, Technical chlorinated camphene, 67-69 percent chlorine)	0.5
D040	79-01-6	Trichloroethylene	0.5
D041	95-95-4	2,4,5-Trichlorophenol	400.0
D042	88-06-2	2,4,6-Trichlorophenol	2.0
D017	93-72-1	2,4,5 TP Silvex (2,4,5-Tri-chlorophenoxypropionic acid)	1.0
D043	75-01-4	Vinyl chloride	0.2

* Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.

**IF o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.

storage prior to that discharge is subject to the hazardous waste regulations. This exemption does not apply to hazardous waste that is transported by truck or rail to a POTW.

An exemption from the mixture rule exists if very small amounts, or de minimis amounts, of listed hazardous waste are discharged to a facility's wastewater treatment plant with large volumes of nonhazardous wastewater. Discuss this exemption with your WHMD district office.

Laboratory samples:
A waste sample that is sent to a laboratory to determine if it is a hazardous waste is exempt from most of the hazardous waste regulations, if it meets certain conditions. Send the smallest amount needed for the test (typically this is less than one gallon) to the laboratory, and the laboratory may return any remaining sample to the generator. If the waste is determined to be a hazardous waste this exemption no longer applies to the sample after it is no longer needed for waste characterization purposes. See Chapter 2.3.3.

It is recommended you discuss with the laboratory its procedures for accepting samples. When shipping the sample, you must meet any U.S. Postal Service or USDOT labeling and shipping requirements. If these agencies' regulations do not apply to the sample, then the sample must be packed so that it does not leak, spill, or vaporize. In addition, the following information must accompany the shipment:

- Sample collector's name, mailing address, and telephone number.
- Laboratory's name, mailing address, and telephone number.
- Date of shipment.
- Quantity of the sample.
- Description of the sample.

2.3.1.d Universal Waste

Many businesses are not aware that Michigan adopted the universal waste rule in October 1996, and many companies are not properly handling these wastes. This rule gives facilities the choice of handling specific wastes as a universal waste or continuing to manage them as a hazardous waste. The following may be handled as universal waste:

- Electric lamps including fluorescent, high intensity discharge, sodium vapor, mercury vapor, neon, and incandescent lamps; and cathode ray tubes (CRTs) from computers, televisions, or other equipment;
- Batteries, including lead acid and dry cell types;
- Devices containing only elemental mercury, such as thermostats, switches, thermometers, and other devices;
- Some pesticides, including certain suspended, canceled, or unused pesticides.

There are two levels of universal waste handlers—a Small Quantity and Large Quantity Handler. Do not confuse universal waste handlers with the hazardous waste generator status levels of Small Quantity Generator (SQG) and Large Quantity Generator (LQG). A Small Quantity Handler

accumulates less than 5,000 kilograms (11,000 pounds) of universal waste. A Large Quantity Handler accumulates 5,000 kilograms (11,000 pounds) or more of universal waste. There are also requirements for universal waste transporters and destination facilities which are not discussed in this guidebook.

The following identifies some advantages of handling these wastes as universal waste:

- If a company chooses to manage these waste streams as a universal waste, they do not include this quantity in determining their generator status. For some companies this may allow them to reduce their generator status level. For example, an LQG that manages part of its hazardous waste stream as a universal waste, may be able to become a SQG.

- Facilities can store universal wastes up to one year. This is a longer storage time than allowed for Small Quantity and Large Quantity Generators' hazardous waste.

- There is less labeling required for storage of universal waste than what is required for hazardous waste. The labeling is specific to the waste.

- A hazardous waste manifest and the use of permitted and registered hazardous waste transporters is not necessary to ship the waste. However, if the waste is a liquid (e.g., pesticides) and the shipment does not meet the circumstances summarized in Chapter 2.3.6, then the shipment must be manifested under the liquid industrial waste regulations and a permitted and registered liquid industrial waste transporter must be used.

Some universal waste may be regulated as a USDOT hazardous material if it meets the criteria specified in ***49 CFR Part 173.2***. For example, shipments of more than one pound of mercury per package, and many pesticides, are regulated USDOT hazardous materials. The amount of mercury varies in the different devices. This material must be packaged, labeled, marked, placarded and transported with the proper shipping papers according to USDOT requirements. Contact the USDOT at 517-377-1866 for information about their requirements (refer to Chapter 4).

There are employee training and spill response requirements for both Small Quantity and Large Quantity Handlers if your company decides to manage these waste streams as universal waste. These are discussed in Chapters 2.3.11, 4, and 7. Other universal waste requirements are included throughout the remainder of this chapter.

2.3.2 Determining If You Generate Hazardous Waste

First, conduct a waste survey as described in the Introduction to identify all your waste streams. You might be able to identify the type of waste you have by applying your own knowledge about the waste and your business activities. To identify hazardous waste by this method, you need to have a thorough knowledge of all the processes and ingredients used in your business. For example, you might easily determine some of your waste stream is hazardous waste based on its ignitability, corrosivity, and/or reactivity characteristics. You will need to maintain

documentation supporting your determination. Applying your knowledge is more useful when declaring something as a hazardous waste than when saying a waste is NOT hazardous.

If you have unused product needing disposal, the material safety data sheet for that product might provide the necessary information to help you determine if it is hazardous waste. Material Safety Data Sheets (MSDS) can be obtained from the suppliers or manufacturers of the products you are using. An MSDS is not completely reliable for determining if your used materials are hazardous waste because they do not include information about contaminants that might be in that waste. See Appendix D for more MSDS information.

Other references from companies with comparable processes and information from product suppliers and/or trade associations may also be used to support your determination.

If you cannot determine if you have hazardous waste based on your knowledge, you may be required to have testing completed by a qualified laboratory. See Chapter 2.3.3 for information regarding testing.

You may be generating hazardous wastes if your company does any of the following:

- Generates waste products such as cleaning fluids used for blanket and roller washes, some inks, film fixer, and shop rags used with solvents or hazardous chemicals;
- Generates any wastes from the sources included on the “F” or “K” lists in the state or federal regulations. Common examples include spent solvents containing toluene and MEK that have a hazardous waste number of F005 and xylene and acetone that have a waste number of F003;
- Discards any of the commercial chemical products on the “P” and “U” lists in the state or federal regulations. Examples include 1,1,1-Trichloroethane which has a hazardous waste number of U228, xylene with a waste number of U239, and toluene with a waste number of U220. These wastes often result from the decision to reduce inventory and discard unused chemical product;
- Has used solvents with high flashpoints (toxic and ignitable contaminants);
- Has aerosol cans that are not empty (contains “U” or “P” chemicals, ignitability);
- Has solvent-based adhesives (ignitability);
- Has batteries that are lead acid and dry cell (toxic for lead and mercury, corrosive);
- Lists wastes mixed with another nonhazardous waste;
- Uses office computer equipment (may contain lead in the cathode ray tubes, mercury switches, batteries);

- Has discarded, unused chemical products from inventory reduction activities (any of the commercial chemical products on the “P” and “U” lists in the state or federal regulations);

- Owns medical kits containing mercury thermometers or antiseptics containing mercury (toxic);

- Has waste from mixing a listed waste with another waste. The entire mixture (both the listed and other wastes) would now be considered a hazardous waste; or

- Has waste with any of the characteristics listed in the state and federal regulations.

Following are some commonly overlooked wastes when identifying hazardous waste:

- Spent fluorescent tubes and other lighting fixtures (mercury);
- Disposable rags containing free liquids with a flash point of less than 140 degrees Fahrenheit or used with a listed solvent (ignitability via spontaneous combustion, “F” listed solvents);
- Spent activated carbon media, included in some air filters (solvents);
- Used solvents with low flashpoint (toxic, ignitability);
- Drain or sump sludge (toxic metals, gasoline, solvents);
- Batteries, lead acid and dry cell (toxic for lead and mercury, corrosive); and
- Used water-based or synthetic lubricating fluids or inks containing high concentrations of heavy metals. Metals of concern include lead, chromium, cadmium, and barium.

If you know or suspect that you have not fully evaluated your waste or if the wastes are complex, get help. Waste evaluation services can often be obtained from a testing laboratory, consultant, provided by your transporter, or the intended treatment or disposal facility.

You may also obtain advice on waste evaluations from staff at your WHMD district office (see Appendix C). To enable the MDEQ staff to better assist you, read this chapter prior to calling.

Following is general information about specific waste streams and how you can handle them. Discuss any questions about your company’s waste with your WHMD district staff.

2.3.2.a Waste Inks

Not all of your waste inks will be hazardous waste. Some ink may be hazardous waste based on its flammability, being contaminated with other hazardous waste, containing solvents such as petroleum distillates, or having a high concentration of heavy metals such as lead, chromium, silver, cadmium, and barium pigments. The solvent portion of vegetable-based inks such as, soy, linseed, or canola oil, are not hazardous. The residues remaining in ink cans that are considered empty (see Chapter 2.3.1.c) are not hazardous waste. The cans may be recycled if the metal processor will accept them or dispose of them in a licensed sanitary landfill after the residue is dry. If your ink is not a hazardous waste, then manage it as a liquid industrial waste. *If*

you are mixing leftover inks with other inks for another job, that would not be considered waste and you would not need to include them when calculating your hazardous waste generator status.

2.3.2.b Shop Towels and Other Textiles

Disposable rags, uniforms, gloves, and other textiles must be handled as hazardous waste if they contain free liquids that have a flashpoint below 140 degress Fahrenheit or were used with a listed F001-F005 solvent. Textiles that are spontaneously combustible would be a D001 hazardous waste. When determining the waste code for the textiles used with solvents, it is necessary to determine if it is a listed or characteristic hazardous waste. This distinction is based on whether the solvent is a waste before or after the textile is used.

- If a listed solvent is put onto the textile and the textile is subsequently used to clean a part, the facility needs to determine if the resulting waste is characteristically hazardous.
- If the listed solvent is put onto the part and the textile is then used to remove the excess solvent waste, the textile is automatically a listed hazardous waste.

This also applies to reusable materials that are being discarded and the volume would need to be included when calculating your hazardous waste generator status. It is estimated that a 55-gallon drum will hold approximately 125 pounds of spent rags without free liquids.

Reusable textiles are exempt from the hazardous waste regulations if the textiles meet all of the following requirements:

- Textiles are being commercially laundered or drycleaned for reuse;
- Textiles do not contain any free liquids (i.e., you cannot squeeze any liquid from the textiles);
- The containers used to store the textiles do not contain free liquids; and
- Hazardous waste is not mixed with the textile after its original use.

Let your cleaning company know what type of chemicals you are using with these materials so they can determine the best way to clean them and also how it affects their own waste stream. *Reusable textiles being sent for cleaning do not have to be included when calculating your hazardous waste generator status.*

See Chapter 6.5.1.g for shop towel pollution prevention tips.

2.3.2.c Imaging and Platemaking Scrap

Some of the film, plates, developing and fixing fluids used in printing processes may need to be handled as hazardous waste. These wastes might have toxicity, corrosivity, and/or ignitability characteristics. See Chapter 6.5.2.b and 6.5.2.c for waste reduction tips.

Used fixer solutions:
Used fixer solution usually contains silver in amounts that can not be discharged to a wastewater treatment plant or septic system. It may be necessary to install a silver recovery unit. See chapter 6.5.2.b for more information. Before purchasing or leasing a unit, check with the waste water treatment plant for any local requirements to discharge processed liquids. Off-site shipments of the silver recovery unit cartridges and fixer solutions by SQG and LQG must be done by a permitted and registered transporter and manifested as a D011 hazardous waste if the used fixer has a TCLP concentration of 5.0 milligrams per liter (mg/l) or more of silver. Conditionally Exempt Small Quantity Generators (CESQG) may take the silver recovery unit cartridges and liquid fixer waste to a destination facility themselves if meet conditions in Chapter 2.3.6, or hire a permitted and registered transporter to haul the liquid wastes. Liquid fixer solutions, and cartridges that contain free liquids, that do not meet this silver concentration would be manifested and shipped using a 033L liquid industrial waste code. Recovered silver flake is considered product and is not manifested or shipped as regulated waste when sent off-site. All shipments must comply with USDOT requirements regardless of the status under waste regulations.

Used developer and system cleaners:
Check if the waste water treatment plant will allow discharges of used developer and system cleaners. If not, check if the fixer recycler will accept the used developer. If the printer is not taking the used developer themselves to a destination facility, hire a permitted and registered transporter when shipping used developer off-site as liquid industrial waste and manifest the load using a 033L liquid industrial waste code. Do not mix used fixer and developer.

Cleaners used in developer systems may contain chromium. Review the MSDS and other information to determine if the waste cleaner has a chromium TCLP concentration of 5.0 mg/l or more. If so, it would be considered a D007 hazardous waste. If possible, switch to a non-chromium cleaner.

Used film:
It is recommended used film be recycled. Recyclers can be found in the Michigan Recycled Materials Market Directory under the metal category for silver. CESQG may dispose used film in the trash. SQG and LQG may also put it in the trash unless the used film has a silver TCLP concentration of 5.0 mg/l or more classifying it as a hazardous waste. This is unusual. Unused or expired film can normally be returned to the dealer or manufacturer.

2.3.2.d Blanket and Roller Washes and Other Solvents

There are several different types of solvents used in printing operations, and the management of the used solvent and the generated sludge depends on if it is a hazardous waste or not (see Chapter 2.3.2.b for information about solvents on rags). Spent solvent and sludge can be either a listed or characteristic hazardous waste, depending on the chemical and contamination sources. Cross contamination is a concern, when employees add other degreasers that contain tetrachloroethylene (TCE), which is also known as perchloroethylene (Perc), to solvents. One suspected practice that may cause contamination involves using aerosol products containing

TCE. The solvents may also become a D039 waste if the TCLP concentration for TCE exceeds 0.7 milligrams per liter. Solvents include the following:

- Mineral spirits (naphtha or Stoddard solvent) are commonly used. Products containing mineral spirits have variable flashpoints. Mineral spirits with a flashpoint of 140 degrees Fahrenheit and above are not a hazardous waste due to their ignitable characteristic but may be contaminated with other hazardous waste constituents through use requiring them to be managed as hazardous waste. However, mineral spirits with a flashpoint below 140 degrees Fahrenheit are classified as a D001 hazardous waste. Usually the mineral spirits with the lower flashpoint are redistilled and reused, while the nonhazardous liquids are often disposed of instead of recycled.

- Aqueous cleaners are a recommended replacement for the other solvent types for several reasons, even though some aqueous cleaning formulations contain solvent additives such as terpenes, glycol ethers, and alcohols. The aqueous cleaners contain less volatile organic compounds (VOCs), are usually less toxic, and are generally nonhazardous waste unless they have been contaminated with a listed waste or have acquired a contaminant that causes the solvent to exhibit a hazardous waste characteristic. One way to manage spent aqueous washers is to discharge this waste stream to a municipal sewer system, if the company has permission from the sewer authority to do so.

Facilities should evaluate the solvents they are using to determine if an alternative product can provide the same desired results without generating hazardous waste. Management can also reduce the chance of cross contamination by controlling the inventory of products used at the facility and educating their employees on the importance of not contaminating the parts washer with other wastes. In addition, air quality regulations require that parts washer lids be kept closed when not in use on units if the solvents contain regulated VOCs. See Chapter 1.1.1.

Solvent recycling:

Facilities that use large volumes of solvents should consider recycling the used solvents on-site. It is not necessary to obtain a hazardous waste permit to recycle solvents at the site of generation. However, an air quality permit may be necessary if there are air emissions. Check with the AQD district office (see Appendix C for phone numbers) if you are considering this option. Handle the sludge and other residue generated from solvent recycling as a hazardous waste. If the recycling unit is being serviced by another company, a facility should periodically review the servicing schedule to determine if the best solvent is being used and the schedule meets the facility's solvent requirements. See Chapter 6.5.1.g for more information on solvent pollution prevention.

Another option is to ship the used solvents off-site to a commercial recycler for reclamation. This requires the use of a hazardous waste manifest and a permitted and registered transporter. If the solvent material is being directly reused under certain conditions, it is considered a product and it is not necessary to manifest the shipment or use a permitted and registered transporter. Call your WHMD district office if you have any questions about reuse or recycling of solvents.

2.3.2.e Fluorescent Lamps and Other Lights

Currently, generators of used fluorescent lamps, incandescent lamps, high intensity discharge (HID) lamps such as mercury vapor, metal halide and high pressure sodium lamps, or other lighting materials must determine if their lighting materials are a hazardous waste. This can be accomplished by using knowledge about the lamps, such as documentation from the lamp manufacturer, or by having the TCLP test done. Fluorescent and HID lamps containing mercury at concentrations of 0.2 mg/l or more are a D009 hazardous waste. Incandescent lamps containing lead at concentrations of 5.0 mg/l or more are a D008 hazardous waste. If the lamps fail the TCLP, then they must be managed and disposed of according to the hazardous waste requirements OR a company may choose to assume they are hazardous waste and handle them under the universal waste regulations.

An alternative to disposal of the hazardous waste lamps involves recycling the used lamps. The metal end caps, mercury, glass, and powder can be recovered. Most recyclers only want to handle unbroken/uncrushed lamps. Basically there are two types of recycling options available. One involves shipping the spent lamps to a recycling company. You need to manage the lamps as a hazardous waste while they are at your facility and ship the lamps with a hazardous waste manifest OR follow the universal waste regulations. The other option involves having a recycling company come to your facility and recycle the used lamps on-site. Under this situation, you only need to manage the lamps as a hazardous or universal waste while they are on-site. Once the lamps are processed, the recycler is responsible for any further hazardous waste management requirements, provided all residues remain with the recycler when they leave the facility. If any residues are left at the facility, you are responsible for managing them properly. Some lamp manufacturers are now marketing low mercury bulbs which do not exceed the TCLP limits and thus are not a regulated hazardous waste, but the bulbs still contain some mercury. Recycling of low mercury bulbs is recommended to reduce a company's liability in case contamination eventually occurs at the landfill where the solid waste was sent.

Lamp crushers:

If you are considering the use of a lamp crusher, first contact DEQ's WHMD and AQD district offices (see Appendix C for phone numbers) and CIS, Consultation Education and Training Division Program at 517-322-1809 to discuss any operating and air permitting requirements. If you decide to operate a drum top crusher on-site for treating your own bulbs, it is not necessary to obtain a permit from the WHMD; but it is necessary to meet ALL the applicable requirements under ***R 299.9503(1)(i)***. This includes proper container management and inspections, use of secondary containment, and emergency preparedness and prevention requirements. Lamps that are crushed can no longer be managed as universal waste. It becomes necessary to determine, usually by having a TCLP done, if the waste and filters generated from the crushing process are hazardous waste. If the residue is not considered hazardous waste, meets LDR standards, and does not contain free liquids, it can be disposed of in a licensed solid waste landfill if the landfill authority will accept it. The use of lamp crushing devices may require a permit from the AQD. There are additional lamp recycling requirements if you handle other companies' bulbs.

2.3.2.f Capacitors and Ballasts

Capacitors and ballasts frequently have components that contain hazardous substances. If you have waste devices, determine if they contain polychlorinated biphenyls (PCBs) which are regulated under the federal Toxic Substances Control Act (TSCA). PCB articles regulated under TSCA include those items containing a PCB concentration of 50 ppm or greater and any leaking devices. See Chapter 4.4 for more information about PCBs. Prior to 1978, most ballasts were made with small capacitors containing PCB insulating liquid. In addition, in some cases, "potting material" in ballasts has been found to contain 50 ppm PCBs. If you have ballasts manufactured prior to 1978, or your ballasts do not contain the statement "No PCBs," you should assume that they contain PCBs unless you have:

- Documentation from the manufacturer that states they do not contain PCBs.
- Chemical analysis which indicates that they do not contain PCBs.

Most small capacitors containing PCBs have approximately 1 to 1.5 ounces of PCB fluid. If a ballast is leaking or the "potting material" (the insulating material inside the ballast) contains PCBs at concentrations greater than or equal to 50 ppm, the device is regulated as a PCB article. If the device is regulated under TSCA, it is exempt from the hazardous waste regulations. If the device is not regulated under TSCA, it is necessary to determine if other components in the device cause it to be a ***Part 111*** hazardous waste. Occasionally lead, cadmium, chromium, or other D004 through D017 constituents might exist at a hazardous waste regulated concentration. PCBs by themselves are not a regulated hazardous waste. If it is determined the device is a hazardous waste because of other constituents, then it must be managed according to the applicable ***Part 111 of Act 451*** requirements.

Questions regarding management and disposal of PCB articles should be directed to USEPA, Region 5, Office of Pesticides and Toxic Substances at 312-886-7061. Additional information can be found on the web at www.epa.gov/pcb.

Disposal:

If ballasts contain less than three pounds of PCB fluid, they may be sent to a licensed municipal solid waste landfill unless they are leaking. If the potting material is known or assumed to contain over 50 ppm PCBs, you must notify the landfill. TSCA-regulated PCB-soiled items or fluorescent fixtures, including leaking ballasts, must be taken to a USEPA-approved chemical waste processing site. Arrangements must be made with facilities for the pick-up, manifesting, and shipments of PCB articles. Look in the telephone yellow pages under waste disposal or on USEPA's web site at **www.epa.gov/pcb** for companies servicing your area. These firms may also perform minor PCB spill cleanups and arrange for the removal of PCB capacitors.

USEPA does not require incineration of nonleaking, small PCB capacitors (lighting ballasts). They should be placed in USDOT-approved drums with adequate absorbent such as sawdust or soil to absorb any liquid remaining in the capacitor, then labeled and disposed of in an

approved landfill or chemical disposal facility. If the devices contain liquids and are not a regulated PCB article, or are a hazardous waste generated by a CESQG, either hire a permitted liquid industrial waste transporter or transport the devices in your own company's vehicle and take them to an approved disposal site. Complete an MDEQ waste manifest for each shipment hauled by a permitted transporter, or keep the necessary records if you hauled it yourself in quantities of 55 gallons or less (see Chapter 2.3.6). For devices that are not characterized as a hazardous waste, use the waste code 026L for PCB-containing devices; or use the 029L waste code for other ballasts or capacitors containing non-PCB liquids on the manifest. If the devices are a hazardous waste from a SQG or LQG, hire a permitted and registered hazardous waste transporter and use the applicable hazardous waste code on the manifest.

If the waste is going to a landfill, contact the landfill authority to determine if they will accept the waste. Disposal of PCBs as municipal or industrial solid waste is subject to the reportable quantity requirements under the ***Comprehensive Environmental Response Compensation and Liability Act of 1980, as amended (CERCLA) (40 CFR 302.6).*** USEPA recommends that no more than 25 intact and non-leaking PCB ballasts be disposed of within a one-year time period in a municipal waste landfill. The MDEQ recommends that PCB-containing light ballasts be managed and disposed of as PCB waste due to potential future liability issues.

2.3.2.g Used Oil and Filters

Used oil from your compressors, other equipment, and vehicles (if you service your own fleet) will need to be managed as a hazardous waste if the total halogen concentration exceeds 1,000 ppm, unless the test is rebutted. This rebuttal is discussed in ***R 299.9809*** of the ***Hazardous Waste Rules***. If the total halogen concentration is below 1,000 ppm, it needs to be handled as a liquid industrial waste when recycled.

Most haulers will test the used oil before picking it up or may require that you provide documentation on whether it is a hazardous waste or not. SQGs and LQGs cannot mix hazardous waste with their used oil. CESQGs may mix hazardous waste with their used oil if it is to be burned for energy recovery, but it must also pass the total halogen test. This used oil would need to have the waste code for the hazardous waste it was mixed with on the manifest. Some companies do not want any other waste added to the used oil. Check with the company picking up or recycling your used oil for their requirements.

See Chapter 2.3.6 regarding transporting 55 gallons or less of your own used oil to a collection center that has notified the WHMD of their activity. Additional management requirements are described in the "Used Oil and Spent Filters" fact sheet. Used oil cannot be disposed of in a landfill, municipal solid waste incinerator, or used for dust control. *Only the volume of used oil that is considered a hazardous waste must be included when calculating your hazardous waste generator status.*

The used oil regulations under ***Part 111*** do not apply to vegetable- or fat-based oils, or other petroleum-based products not designed to function as a lubricating agent or other protective application. ***Part 111*** regulations do apply to used motor oil, hydraulic and gear oils, transmission

and brake fluids, synthetic cutting and machining oils, cooling or quench oils, nonPCB transformer oil, and oil/water mixtures. If you have an oil/water separator, the separated oils would need to be managed as used oil.

Used oil filters that are nonterne plated and hot-drained for a minimum of 12 hours to remove the used oil, can be recycled as scrap metal or disposed of in a sanitary landfill. Terne-plated filters will test out to be a hazardous waste and would need to be managed as such or recycled. Terne is a lead tin alloy that is sometimes used in certain filters. *You would need to include the terne-plated filters in calculating your hazardous waste generator status.*

2.3.2.h Sorbents

Sorbents used to clean up spills can be sent to a licensed sanitary landfill (Type II) if they contain no free liquids (they pass the paint filter test) and the materials are either of the following:

- Are not a hazardous waste; or
- Are a hazardous waste generated by a CESQG.

Check with the landfill operator to see if they accept contaminated sorbent materials. Except under specific circumstances, it is not permissible to intentionally add wastes, including used oil, to sorbents for disposal in a landfill. Used sorbents that are not considered hazardous waste and do not pass the paint filter test must be handled as a liquid industrial waste.

Generators must handle the sorbents as hazardous waste if the material was used to clean up listed hazardous waste. Generators must also evaluate used sorbents to determine whether they exhibit one or more hazardous waste characteristic and manage them appropriately. This volume of hazardous waste needs to be included in calculating your generator status. Remember that this quantity could affect your generator status and, therefore, your requirements.

A WHMD permit is not required to add absorbent materials to hazardous waste in a container if all the conditions in ***R 299.9503(1)(h)*** are met and the treatment does not violate the land disposal restriction requirements.

2.3.2.i Aerosols

Aerosols are a commonly overlooked hazardous waste and industry uses numerous spray cans including degreasers, paints, etc. Residues in aerosol containers are exempt from the hazardous waste regulations if the cans are “empty,” which means the pressure in the container approaches atmospheric pressure and they contain less than one inch of non-acute residue. One practical test is to turn the aerosol can upside down and press down on the nozzle. If you don’t hear or see anything and the can feels light, it is usually empty. It is recommended that empty cans be recycled as scrap metal. Unfortunately, salvage yards in some areas of the state will not accept them at this time.

If the spray can still contains product and it needs to be disposed of, you must determine if it is a hazardous waste. Not only is it illegal to intentionally spray out the can's contents just so it meets the "empty" definition, it is also costly in lost product. Look at the MSDS or label to determine if any of its contents are a hazardous waste. For example, aerosols containing TCE in regulated concentrations in the product mixture is a D039 waste, or it would be U210 if the aerosol product is TCE. Many aerosols are also hazardous waste due to their ignitability (D001).

Aerosol Can Crushers and puncturing devices:
Aerosol can crushing and puncturing devices normally fit onto a 55-gallon drum. If you are considering operating an aerosol can device, first contact MDEQ's WHMD and AQD district offices (see Appendix C for phone numbers) and CIS, Consultation Education and Training Division Program at 517-322-1809 to discuss any operating and air permitting requirements. Operation of these devices requires the generator to meet the requirements of the hazardous waste rule ***R 299.9503(1)(i)***. This includes, but is not limited to, container management, secondary containment, and preparedness and prevention requirements.

If you do operate a can crushing device, it is necessary to characterize the carbon filters when they are replaced, and any liquids collected in the process, to determine if these materials are a hazardous waste. The collected waste is often flammable (D001) waste so you will want to ensure that no sparking or smoking occurs near the device. The drums are usually handled as a satellite container while being filled (see Chapter 2.3.8). In addition, LQGs are also subject to the ***40 CFR 264*** and ***265 Subpart BB*** and ***CC*** air emission requirements. Direct any questions to the WHMD district office.

See Chapter 6.5.1.f for aerosol pollution prevention strategies.

2.3.2.j Batteries

If you have lead acid batteries, it is recommended that you send them for recycling because then they are exempt from most of the hazardous waste regulations. Lead acid batteries are banned from disposal in Michigan's landfills and incinerators. If they are being recycled, they do not have to be manifested and there is no time limit on how long they are stored before shipping. Lead acid batteries should be stored in a way that protects them from cracking open. Keep the batteries in an area that is constructed with an impervious surface, well ventilated, secure from vandalism, and protected from freezing, sparks and flames, and do not allow smoking in the storage area. If a battery is dropped or leaking, one recommendation is to place it in a plastic pail and use baking soda or lime to neutralize any spilled acid. If you get acid spilled on your skin, immediately rinse the area with water and get medical attention. Remember to proprely dispose of the used neutralizing material which may be a hazardous waste since it may contain lead or unneutralized acid. Check with the local wastewater treatment plant to see if they allow you to discharge any liquid acid to their system. Unneutralized liquid residue from a spill has a D002 hazardous waste code, and any battery residue that has lead levels of 5.0 mg/l or more has a D008 waste code. *The volume of lead acid batteries being recycled and other batteries being handled as universal waste are not included when calculating your hazardous waste generator status.*

Dry cell batteries are used to power portable power tools, flashlights, calculators, and other equipment. Spent nickel-cadmium, alkaline, and lithium batteries are often hazardous waste because they contain heavy metals such as mercury, cadmium, and lead along with other chemicals. It is recommended you handle them as a universal waste.

If you choose to recycle your used dry cell batteries, ask the recycling company what their specific requirements are for packaging and shipping. For example, they may want the batteries sorted by their type such as all mercury batteries stored together, nickel-cadmium batteries kept in another container, etc. You still need to manage the dry cell batteries as hazardous waste or a universal waste while they are stored on-site. If you decide to dispose of them, handle them as a hazardous waste.

2.3.3 Laboratory Testing

Sometimes it will be necessary to test samples of your waste to determine if it is hazardous waste or liquid industrial waste. When you need to do this, hire a reputable firm to provide these services and obtain a written contract. The contract should clearly identify what specific services that company will provide. For example, instead of just containing vague language about sampling the waste, it should identify:

- Who will be responsible for collecting the sample;
- Who will arrange to have it analyzed;
- Who will arrange to have an expert look at the analysis results; and
- Who will determine if the waste is hazardous and at what regulatory limit.

It is a good idea to check with the treatment, storage, and disposal facility where you intend to send your waste before hiring a testing laboratory. They might require specific laboratory tests and only accept data from specific laboratories. If that is the case, then ask them for a listing of these tests and what is the purpose of the tests, along with the approved testing methods, and the acceptable laboratories. This step will prevent you from spending money on laboratory tests which are not necessary or that do not meet the treatment, storage and disposal facility's requirements. A directory of environmental and drinking water testing laboratories is available on the Internet at **www.michigan.gov/deq**.

Samples used for these tests must be representative of the waste you generate. If you change a process or products that result in a change of your wastes, you need to repeat the tests. The laboratory must use USEPA-approved testing methods. Laboratories will provide documentation about the components and characteristics of the waste. In some cases, the tests will save you money by showing that you do not have hazardous waste. Keep your analytical results on file at least three years.

The paint filter test is a method used to determine the presence of free liquids in a representative sample of waste. A predetermined amount of material is placed in a paint filter. If any portion of the material passes through and drops from the filter within the 5-minute test period, it contains free liquids. If these wastes are not regulated under the hazardous waste regulations, they are regulated under ***Part 121 of Act 451*** as a liquid industrial waste.

A TCLP is used to determine if a waste has toxicity characteristics in amounts that meet or exceed regulatory limits causing it to be regulated as hazardous waste. The TCLP was designed to predict whether a waste is likely to leach chemicals into groundwater. It simulates the conditions a waste might encounter in a typical municipal solid waste landfill. Be aware that it is not necessary to identify every chemical component of the waste in order to meet the hazardous waste regulations and ensure adequate treatment or disposal. It may not be necessary to run a TCLP for every constituent included on the “D” list if you are familiar with your process. For example, you may only need to have a TCLP done for metals and volatiles if you know that the other constituents are not present in the waste. In other situations, you may only need to know if a liquid waste is ignitable and can request a flashpoint test; or if it is corrosive and have a pH test done.

Special tests might be required if you have drums or containers of mixed or unidentified old waste. You may be able to minimize laboratory testing costs by providing information about your waste streams and operations that were previously collected during your waste survey.

Although it is not commonly done, you may be able to conduct some tests on your own to determine if you have hazardous waste. For example, used oil can be tested on-site by using a commercial test kit to determine if it contains total halogens greater than 1,000 ppm requiring it to be handled as a hazardous waste. Discuss these testing options with your permitted and registered waste transporter, TSDF, or recycling company to see if they will accept these test results.

2.3.4 Hazardous Waste Generator Status

Your company’s hazardous waste status is based on the total quantity of all the hazardous waste being generated and accumulated at your site over a specific time period. To determine your hazardous waste generator status, use the results from your waste survey (see Introduction) that identified all of the waste streams your business generates and ask yourself:

1. Is the waste material a listed or characteristic hazardous waste? If yes, then continue counting it. If no, then that waste is not subject to the hazardous waste regulations.

2. Is there a hazardous waste exclusion or exemption for that waste? If the waste has not been excluded or does not meet exemption criteria, then you have a hazardous waste that must be managed according to the hazardous waste regulations and you must count it. If the waste meets an exemption or has been excluded, then that waste is not subject to the hazardous waste regulations.

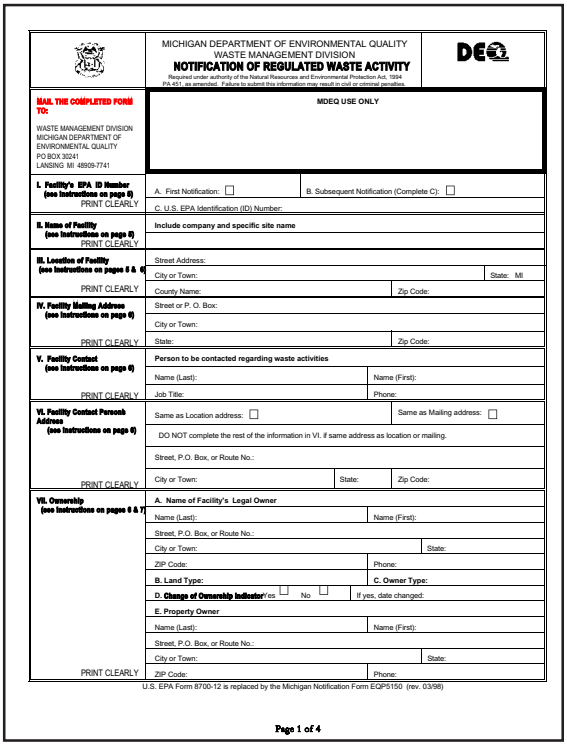
You DO NOT NEED to count the following:

- Waste being managed as a universal waste;
- Reusable shop towels or other textiles that do not contain free liquid and are sent to a commercial cleaning service;
- Scrap metal when recycled;
- Some materials being recycled such as silver being reclaimed on-site as a precious metal, lead acid batteries, and used oil;

- The remaining residue in empty containers; and
- Hazardous waste being discharged to a sanitary sewer with *prior approval* by the wastewater treatment plant authority.

Use the totals calculated for the regulated hazardous waste streams to determine which one of the following three generator categories in Table 2.2 applies to your facility. Your generator status determines which of the regulations you must follow. There are specific storage time and accumulation volume limits for any generator of hazardous waste. If the generator does not exceed these limits, a hazardous waste storage operating license is not required. Reporting and record keeping requirements increase as a business generates more hazardous waste. It might be possible to reduce your generator status if you generate less hazardous waste at your business. This will result in your need to meet fewer regulations.

2.3.5 Identification Numbers



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WASTE MANAGEMENT DIVISION
NOTIFICATION OF REGULATED WASTE ACTIVITY
Required under authority of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Failure to submit this information may result in civil or criminal penalties.

DEQ

MAIL THE COMPLETED FORM TO:
WASTE MANAGEMENT DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
P.O.BOX 30241
LANSING MI 48909-7741

MDEQ USE ONLY

I. Facility's EPA ID Number (see instructions on page 6) PRINT CLEARLY
A. First Notification: ☐ B. Subsequent Notification (Complete C): ☐
C. U.S. EPA Identification (ID) Number:

II. Name of Facility (see instructions on page 6) PRINT CLEARLY
Include company and specific site name

III. Location of Facility (see instructions on pages 6 & 7) PRINT CLEARLY
Street Address:
City or Town: State: MI
County Name: Zip Code:

IV. Facility Mailing Address (see instructions on page 6) PRINT CLEARLY
Street or P. O. Box:
City or Town:
State: Zip Code:

V. Facility Contact (see instructions on page 6) PRINT CLEARLY
Person to be contacted regarding waste activities
Name (Last): Name (First):
Job Title: Phone:

VI. Facility Contact Person's Address (see instructions on page 6) PRINT CLEARLY
Same as Location address: ☐ Same as Mailing address: ☐
DO NOT complete the rest of the information in VI. if same address as location or mailing.
Street, P.O. Box, or Route No.:
City or Town: State: Zip Code:

VII. Ownership (see instructions on pages 6 & 7) PRINT CLEARLY
A. Name of Facility's Legal Owner
Name (Last): Name (First):
Street, P.O. Box, or Route No.:
City or Town: State:
ZIP Code: Phone:
B. Land Type: C. Owner Type:
D. Change of Ownership Indicator Yes ☐ No ☐ If yes, date changed:
E. Property Owner
Name (Last): Name (First):
Street, P.O. Box, or Route No.:
City or Town: State:
ZIP Code: Phone:

U.S. EPA Form 8700-12 is replaced by the Michigan Notification Form EQP5150 (rev. 03/98)

Page 1 of 4

Manufacturers are required to have a unique waste identification number for each site. In July 2001, the WHMD replaced the form titled the *"Notification of Regulated Waste Activity"* with the new *"Site Identification Form" (EQP 5150).* For Michigan facilities, this form replaces the USEPA *Notification of Regulated Waste Activity Form 8700-12*, the USEPA *Hazardous Waste Permit Part A Form 8700-23*, the *Michigan Notification of Regulated Waste Activity Form*, the USEPA *Notification Identification and Certification Form 8700-13A/B*. The *"Site Identification Form"* is used in conjunction with the *"Michigan Hazardous Waste Permit Part A Form" (EQP 5111).*

This revised form is used with a new numbering system (MIK# # # # # # # # #) for sites that manage certain waste streams. This numbering system applies to:

- **Hazardous waste and liquid industrial waste** generators, transporters, treatment, storage, and disposal facilities; hazardous waste fuel burners and marketers.
- **Universal waste** large quantity handlers and destination facilities.
- **Used oil** generators, collection and aggregation sites, transporters, processors or re-refiners, burners, and marketers.

If a printer is required to obtain a site identification number under ***Part 111*** (Hazardous Waste Management), or ***Part 121*** (Liquid Industrial Waste) of ***Act 451***. They will need to complete, sign, and submit the *"Site Identification Form" (EQP5150).* The form and instructions may be

TABLE 2.2
SUMMARY OF THE HAZARDOUS WASTE GENERATOR STATUS CATEGORIES

	Amount of non-acute hazardous waste generated in 1 month	Approximate volume of non-acute hazardous waste[1]	Amount of acute or severely toxic hazardous waste generated per month[2]	Maximum amount of non-acute hazardous waste that can be accumulated on-site	Maximum time period before waste must be shipped
Conditionally Exempt Small Quantity Generator (CESQG)[3]	Less than 100 kilograms (220 pounds)	Less than half of a 55-gallon drum, or 25 gallons[1]	Less than 1 kilogram (2.2 pounds)[2]	1,000 kilograms (2,200 pounds)	No time limit unless amount exceeds 2,200 pounds
Small Quantity Generator (SQG)[3]	At least 100 kilograms (220 pounds) but less than 1,000 kilograms (2,200 pounds)	One-half to five drums, or 25 to 250 gallons[1]	Less than 1 kilogram (2.2 pounds)[2]	6,000 kilograms (13,200 pounds)	180 days, unless shipping over 200 miles, then 270 days
Large Quantity Generator (LQG)	1,000 kilograms (2,200 pounds) or more	Five full drums, or 200-250 gallons[1]	1 kilogram (2.2 pounds) or more[2]	No maximum amount	90 days

[1]The liquid volume is only given as an estimate and is based on the waste having approximately the same weight and volume equal to water. Your liquid hazardous waste might have a different volume based on its weight. The regulations state amounts by weight.

[2]Acute hazardous wastes are those in the "P" list and certain wastes in other lists indicated with an (H); severely toxic wastes are those with an "S" in their number.

[3]If you are registered at one generator status but have a monthly hazardous waste shipment larger than the quantities allowed at that status, then you will need to update your generator status by renotifying (see Chapter 2.3.4).

downloaded off the Internet at **www.michigan.gov/deq**, or you may call 517-335-5035 or 800-662-9278 to obtain a printed copy. Companies will no longer be issued Michigan waste identification numbers by calling the WHMD, Manifest Unit. There is a one-time user charge to obtain a number as of October 1, 2002. An annual handler user charge will also be assessed for certain hazardous waste activities. This annual charge does not apply to CESQGs.

At this time, this new numbering system does not affect facilities that currently have a USEPA hazardous waste identification number (which has a prefix of MIR, MID, MIT, MIE, or MI0) or Michigan identification number (which has a prefix MIG, MIH or MIP). However, a facility may need to obtain a new site identification number and update notification information previously submitted if there are changes regarding their hazardous waste or liquid industrial waste management at the site. Examples of when a notification must be submitted:

- A company that had previously only shipped used oil and had a Michigan identification number but now is a SQG or LQG must submit an *EQP 5150* to obtain a new Site Identification Number (which has a prefix MIK).

- A facility that moves to a new location and will be generating or managing regulated waste at the new site must submit an *EQP 5150*. If there was an identification number issued for the previous site, the identification number for the old location can be deactivated by including a note on the new notification in the comments box on page two. Include the name of the old facility, address, the identification number, and the date operations ceased at the previous location.

- A company that no longer generates waste that requires an identification number at a location but the company is still in operation at that site, or has gone out of business, must submit the *EQP 5150* form with the box checked in Section E that states it is no longer in business or generating waste at that location. A second option is to send a letter with your deactivation request to the WHMD, Lansing Office. Include your company's name and address, the identification number at the old location, the date you stopped operating there, and your signature.

- A company wants to haul used oil in volumes of 55 gallons or less from other locations owned or operated by the company to a central location, or wants to offer a community service and wants to accept used oil from individuals changing their own oil.

A facility may have an identification number issued under a different program, such as a medical waste identification number or a federal identification number for PCBs assigned by the USEPA TSCA Program. Those numbers may be used on a manifest but only when shipping the waste regulated under that specified program. Shipments of regulated liquid industrial waste or hazardous waste require the use of the applicable identification number issued by the DEQ, WHMD or previously issued by USEPA on the manifest.

Do not use outdated versions of the form *EQP 5150*. If you are uncertain about whether you have the correct form or if you need a different waste identification number, or have questions

about hazardous waste and liquid industrial waste management, contact your WHMD district office or call 800-662-9278 for a referral. If you have questions about an application for a site identification number, call the WHMD at 517-373-2730 and ask for a notification program coordinator. When submitting the form, make sure your form is filled out completely and correctly. Sign the certification section and mail the form to the WHMD. The address is listed in the instructions.

2.3.6 Manifests and Record Keeping

2.3.6.a Universal Waste

Manifests are not required for shipping universal waste except for shipments of liquid universal wastes which would be manifested as liquid industrial wastes. If the universal waste is a USDOT hazardous material under ***49 CFR Part 171.8***, however, then the shipment must be described on a shipping paper in accordance with USDOT regulations under ***49 CFR Part 172***.

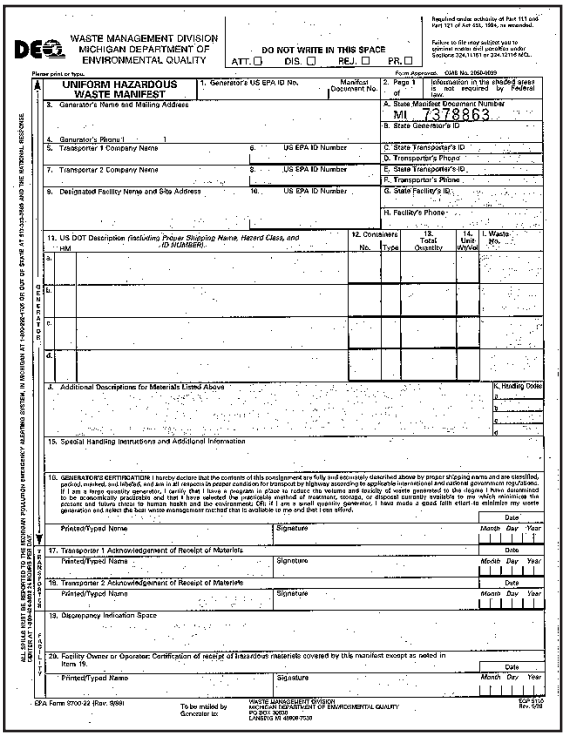
Small Quantity Handlers are not required to keep a record of their universal waste shipments. Large Quantity Handlers must keep records of universal waste they receive and universal waste shipped off-site. These records must be kept at least three years. The records can be in the form of a log, invoice, manifest, bill of lading, or other shipping document. The following information must be recorded:

- Name and address where the universal waste came from or to where it was shipped;
- Quantity of each waste type (i.e., batteries, electric lamps, pesticides, etc.) received or shipped out; and
- Date when you received the shipment or when you sent out the shipment.

2.3.6.b Hazardous and Liquid Industrial Waste Manifests

The multi-copy manifest forms are designed to track hazardous and liquid industrial waste shipments of waste from their point of generation to their final destination. Specific requirements depend on the type of waste shipped. You are required to list all the applicable hazardous waste numbers for each hazardous and liquid industrial waste you ship with the manifests. The liquid industrial waste descriptions and numbers are included in the manifest instructions.

The generator of the waste, the transporter, and the TSDF that receives the waste must each sign and keep a copy of the manifest as they handle the waste. For the majority of generators,


WASTE MANAGEMENT DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No. | 2. Page 1 of | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address

A. State Manifest Document Number MI 7378863

B. State Generator's ID

4. Generator's Phone ( )

5. Transporter 1 Company Name | 6. US EPA ID Number | C. State Transporter's ID

D. Transporter's Phone

7. Transporter 2 Company Name | 8. US EPA ID Number | E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address | 10. US EPA ID Number | G. State Facility's ID

H. Facility's Phone

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID NUMBER) | 12. Containers No. | Type | 13. Total Quantity | 14. Unit Wt/Vol | I. Waste No.

a.
b.
c.
d.

J. Additional Descriptions for Materials Listed Above | K. Handling Codes

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name | Signature | Date Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name | Signature | Date Month Day Year

EPA Form 8700-22 (Rev. 9/88) | To be mailed by Generator to: WASTE MANAGEMENT DIVISION MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY P.O. BOX 30241 LANSING MI 48909-7741 | EQP 5170 Rev. 1/98

manifesting will be required. However, there are three circumstances when generator manifests are not required:

1. SQGs are exempted from manifesting hazardous waste if that waste is being transported off-site and reclaimed under a contractual agreement and if certain procedures are followed. However, if it is a liquid then it must be manifested as a liquid industrial waste.

    - The contract must specify the type of waste and the frequency of shipments.

    - The vehicle used to transport the waste to the recycling facility and deliver the regenerated material back to the generator is owned and operated by the reclaimer.

    - The generator maintains a copy of the reclamation agreement for at least three years after the contract expires.

2. A generator hauling their own liquid industrial waste in amounts of 55 gallons or less to a designated facility if the following conditions are met:

    - A record of the source and quantity of waste and where the waste is being transported to accompanies the waste shipment.

    - The generator obtains a signature from the designated facility acknowledging receipt of the waste and provides a copy of the record to that facility.

    - The generator keeps a copy of the shipment records for at least three years.

    - The designated facility is managed according to the liquid industrial waste regulations.

3. A generator is having liquid industrial waste picked up on a transporter consolidated manifest. See Operational Memorandum 121-3, *"Revised Part 121 Consolidated Manifest Management Procedures."* It is at **www.michigan.gov/deq**, "Waste," "Hazardous Waste," "Hazardous Waste Management."

You may want to discuss these manifest exemptions with your WHMD district office (see Appendix C for phone numbers).

The WHMD requires that Michigan manifests be used in place of USEPA manifests or another state's forms for shipments to any Michigan TSDF. Both liquid industrial waste and hazardous waste shipments are listed on the DEQ *"Uniform Hazardous Waste Manifest" (EQP 5110).* If you are shipping your hazardous waste out of state, check with the respective state as to which manifest you should use. Submit a copy of out-of-state manifests to the WHMD as well as the receiving state agency. Discuss with the WHMD district office what you need to do if you intend to ship your hazardous waste by rail or by water. There are different manifest requirements that must be followed when these transportation methods are used.

You can obtain blank copies of Michigan manifests by contacting the WHMD, Manifest Unit if your waste transporter does not provide them. Currently, there is a charge for the manifests. In addition, a processing fee for hazardous waste manifests will be assessed and collected once each year. The first assessment will be sent by February 28, 2004, for manifests processed during the fiscal year ending September 30, 2003. Your waste transporter will often be able to help you complete the manifest, or you may contact the Manifest Unit, or your WHMD district office if you have any questions.

All generators are required to submit the appropriate manifest copy to the WHMD ***within ten days*** after the end of the month in which you shipped the waste. If shipping your waste out-of-state, you may need to photocopy the manifest if there are not enough pages, and submit that copy to the WHMD. The treatment, storage and disposal facility must send you a copy signed by them so you are assured your shipment of waste arrived. Keep this copy signed by the hauler and treatment, storage and disposal facility on file for at least three years. If you shipped out-of-state, send a copy of this signed manifest to the WHMD within ten days after the end of the month in which you received this signed copy. Complete instructions regarding the use of the forms are printed on the back of the manifests. The WHMD has prepared a “Manifest Tracking Log” (see Chapter 2.4) to help you track your waste shipments and recordkeeping requirements. You are not required to use this specific log to track your shipments.

There are time limits in which you should receive the manifest copy from the treatment, storage and disposal facility. If you do not get your copy within the time frames given, you need to submit the following information to the appropriate agency:

- If you *shipped liquid industrial waste or are a CESQG* and have not received a copy of the manifest from the treatment, storage and disposal facility within 35 days, contact the transporter and treatment, storage and disposal facility operator to determine what happened with your shipment. If you still have not received the manifest copy within 45 days after the waste was shipped, then you must file an exception report with the WHMD. Include a copy of the manifest and a letter explaining what contacts you have had with the transporter and treatment, storage and disposal facility, and any information you have regarding the shipment.

- If you are an *SQG*, make sure that you received a manifest copy from the treatment, storage and disposal facility within 60 days after you shipped the hazardous waste. If you have not received it, then you must send a copy of the manifest along with an explanation to the WHMD and USEPA Region 5 stating you have not received confirmation of the delivery from the treatment, storage and disposal facility.

- If you are an *LQG*, make sure that you have received a copy of the manifest from the treatment, storage and disposal facility within 45 days after you have shipped the hazardous waste. If you have not received it, then you must file an exception report with both the WHMD and USEPA Region 5. This report must include a copy of the manifest

and a letter signed by you which explains what efforts you have taken to locate the shipment of hazardous waste and any results of those efforts.

Exception reports to the USEPA should be mailed to:	Exception reports to the WHMD should be mailed to:
USEPA REGION 5 SHARON KIDDON (DR-7J) 77 WEST JACKSON BLVD CHICAGO IL 60604	MDEQ WASTE & HAZARDOUS MATERIALS DIV MANIFEST UNIT PO BOX 30038 LANSING MI 48909-7938

2.3.6.c Land Disposal Restrictions

SQGs and LQGs must send a one-time written notice with the initial shipment of hazardous waste to the TSDF containing specific language advising the TSDF whether or not the hazardous waste shipment is prohibited from land disposal. A new notification must be sent when there is a waste or facility change. This is called a land ban notification, also known as a land disposal restriction (LDR). The LDR program requires hazardous waste to undergo physical or chemical changes so that there is less threat to the groundwater, surface water, and air when the hazardous waste is disposed of in landfills, surface impoundments, injection wells, concrete vaults, underground mines or caves, waste piles, or other land disposal locations. Both listed and characteristic hazardous wastes must meet the LDR treatment standards before being land disposed. Compare the standards that are found in ***40 CFR 268.42*** with the hazardous waste numbers generated at the facility.

The specific treatment standards are too numerous to include in this guidebook. Go to **www.epa.gov/epaoswer/hazwaste/ldr/ldr-sum.pdf** and **www.epa.gov/epaoswer/hazwaste/ldr/index.htm** for more information. Discuss your specific LDR requirements with your TSDF or local WHMD district office. Many TSDFs have preprinted the specific statements on forms that you can use to meet this requirement and will help you properly fill out the information. You are required to keep copies of the land ban notifications and certifications for at least three years after the last shipment of that waste.

The hazardous waste regulations do not require annual reporting in Michigan unless you export or import hazardous waste. However, if your company is subject to the Annual Wastewater Report and the waste generated at the facility contains critical materials as identified under those regulations, you must meet those reporting requirements (see Chapter 3.11).

Common violations regarding land ban notifications:

- Failure to keep a copy;
- Missing category or subcategory of waste information; and
- Incorrect (outdated) treatment standards.

2.3.6.d Biennial Reports

If you are an LQG or treatment, storage and disposal facility, you are required to submit a Biennial Report to the WHMD of the MDEQ by March 1st of every even-numbered year. This report includes the volume of hazardous waste generated at your business, including how you disposed of it, and any waste minimization activities that occurred at your site during the previous odd-numbered year. The MDEQ, WHMD will mail a reporting packet to the facility. Contact the WHMD Lansing office at 517-335-5035 if you did not receive the forms by January of the year they are due, or if you have questions about the information WHMD sent. Contact your district office if you need to see reports submitted to MDEQ beginning with the 1999 report period. Contact USEPA Region 5, Waste Management Division, Information Management Section, at 312-886-7439 if you have questions about your 1997 or earlier reports. Remember to keep a copy of the report in your records for at least three years from the due date.

2.3.7 Hazardous Waste and Universal Waste Storage

There are specific requirements regarding the storage of waste, including how long you can store it before shipping and how it must be labeled. These requirements are detailed in the following sections.

2.3.7.a Accumulation Time Limits

Hazardous waste:
You are allowed to accumulate and store your hazardous waste on-site in containers or tanks for a specified number of days. If you exceed this period, you will be required to obtain an operating license for the storage facility from the WHMD. These limits are determined by your generator status and are identified below:

- *CESQGs* do not have a limited accumulation time by the state, as long as the quantities accumulated are less than 1,000 kilograms (2,200 pounds) of nonacute hazardous waste or 1 kilogram (2.2 pounds) of acute or severely toxic hazardous waste. This limit was set so that a small business could accumulate enough hazardous waste to make shipping and disposal more economical.

- *SQGs* can accumulate hazardous waste up to 180 days (or 270 days if the distance to the disposal site is over 200 miles). The total wasteq uantity must not exceed 6,000 kilograms (13,200 pounds) of nonacute hazardous waste or 1kilogram (2.2 pounds) of acute or severely toxic hazardous waste.

- *LQGs* can only accumulate hazardous waste up to 90 days.

During this time period, hazardous waste must be properly stored at your facility to prevent contamination of the environment. You must comply with specific state and federal regulations if your company has a SQG or a LQG status. If you are a CESQG, you are not required by law to meet all of the requirements providing you do not exceed the 2,200 pound accumulation limit. CESQGs must still operate their business in a manner to prevent contamination and are

responsible for any contamination caused by their businesses. It is recommended that they practice storage, secondary containment, and inspection procedures similar to those required of the SQG and LQG to provide safeguards against environmental contamination.

Universal waste:
Universal waste handlers can store universal waste up to one year after generation or after receiving the waste from another handler. A longer storage time may be allowed if it is proven that it is necessary to accumulate enough universal waste to facilitate proper recovery, treatment, or disposal. A handler must be able to show how long they have had the waste. This can be done by one of the following:

- Labeling the container with the first date universal waste was put into it or when the container was received;
- Labeling the individual item with the date it was considered a waste or received as a universal waste;
- Maintaining an inventory system on-site which identifies the date it became a waste or was received;
- Placing the universal waste in a specific storage area and identifying the earliest date that any universal waste was put in that area; or
- Using any other method that clearly demonstrates how long the universal waste has been accumulated.

Transporters may store universal waste up to ten days. If transporters exceed this period, they will need to manage the universal waste according to the respective handler requirements.

2.3.7.b Container and Tank Requirements

Hazardous waste:
Hazardous waste is commonly stored in either portable containers such as pails, 55 gallon drums, totes, or in aboveground storage tanks. It can also be stored in underground storage tanks although it is not usually practical for SQGs or CESQGs due to the costs to install, maintain, and monitor the tanks. Contact your local WHMD district office for information regarding specific hazardous waste storage requirements. In addition, there are additional regulations for aboveground storage of flammable and combustible liquids, including waste, with a flashpoint of less than 200 degrees Fahrenheit (see Chapter 4 for more information). The aboveground storage of flammable and combustible liquids may also be regulated by the ***MIOSHA General Industry Safety Standards - Part 75, Flammable and Combustible Liquids***, and the local municipality's fire prevention code (see Chapter 28 for more information).

Different containers should be used to segregate different types of waste. You should also keep a waste log for liquid wastes noting the type and quantity of waste added to the container. Avoid overfilling containers, especially if they are stored outdoors. Fifty-five gallons of some hazardous

liquids can expand to 60 gallons or more when exposed to the heat and sun and may overflow. It is also a good idea to use drip pans under the spigots of containers storing liquid materials. Make sure the drip pans are routinely emptied into the appropriate waste container.

General requirements for all storage containers include:

- Containers must be maintained in good condition.
- Any leaking containers must be replaced.
- Containers must be kept closed except when adding or removing waste.
- Containers must be compatible with the type of waste being stored in them.
- Incompatible wastes must not be placed in the same container.
- All containers holding hazardous materials must be inspected weekly for signs of corrosion and leaks. LQGs are required to keep written documentation of inspections for at least three years. It is recommended that SQGs and CESQGs also keep records. WHMD has the *"Required Weekly Hazardous Waste Maintenance Checklist"* available for your use in meeting this record keeping requirement, but you are not required to use this form.
- Containers must be kept in an area that meets the required isolation distance from property lines. Check for any local requirements. LQGs must have ignitable and reactive hazardous waste stored at least 50 feet from the property line.
- Containers must be protected from weather and fire and secure from vandalism and physical damage such as that caused by fork lifts or other equipment. Keep adequate aisle space for unobstructed movement of emergency equipment and personnel.
- Containers holding flammable and combustible hazardous waste must be grounded to avoid fire hazards. The use of a bonding strip and ground clamps is a common method for meeting this requirement. Also, MIOSHA requires containers containing flammable material that are stacked to have some barrier, like pallets between drums, to prevent sparking when the containers are moved.

Secondary containment of the hazardous waste accumulation area is required for the following generators but is not required for satellite containers:

- SQGs accumulating over 1,000 kg (2,200 pounds) of liquid hazardous waste and F020, F021, F022, F023, F026, and F027 waste.
- LQGs accumulating any amount of liquid hazardous waste and F020, F021, F022, F023, F026, and F027 waste.

Liquid hazardous waste and the above-mentioned “F” wastes must have secondary containment or be managed according to the following:

- The base must be free of cracks and have an impervious surface.

- The containment area must be constructed so that it is able to hold either 10 percent of the total liquid volume of all the containers or 100 percent of the volume of the largest container, whichever is greater. If, however, a loss from one container can lead to losses from other containers, the enclosed area must be able to contain 100 percent of all the liquid portion stored in all the containers.

- The secondary containment area must be designed to prevent run-on or be designed with sufficient excess capacity to contain any rainwater or snowmelt or other precipitation that might accumulate in the storage area. It is recommended that containers be stored in areas protected from the weather, if possible.

- The containers must be elevated or put on a sloped base that prevents them from coming into contact with any liquid accumulating within the containment area.

- All spills, leaks, and precipitation must be removed in a timely manner to prevent overflow from the containment area.

Other solid hazardous waste in containers can be put in containment areas where the containers are not in contact with accumulated liquids including precipitation. The containers can be either:

- Elevated, or otherwise protected; OR

- Stored on a sloped surface, or the containment area can be of another design and operated to drain and remove precipitation.

The hazardous waste regulations do not specify exactly how secondary containment areas must be constructed. You can install a curb, a ramped pad, or a containment room; have structures custom-made for your situation; or use commercially available portable pallets that have a holding structure included in their design. Be aware that the pallets are not sufficient to meet the secondary containment requirements for liquid hazardous waste because they do not provide adequate protection for “squirt distance,” which is the distance a liquid would spurt out if a leak occurred. Other design factors and regulations should also be considered when planning secondary containment. See Chapter 4.1 or the MDEQ *“Guide to Understanding Secondary Containment Requirements in Michigan”* for more information about secondary containment and storage of other materials besides waste.

LQGs and treatment, storage, and disposal facilities are subject to federal regulations under ***Part 264/265 Subpart CC*** when they have volatile organics air emissions of hazardous waste equal or greater than 500 ppm by weight. If a company is subject to ***Subpart CC***, they will also have to meet ***Subparts AA*** and ***BB*** requirements as well. These requirements are too complex

to include in this guidebook. Discuss the requirements for your business with your WHMD district staff.

Universal waste:
Universal waste must be stored in a way that prevents any spills or releases. Containers must be kept closed, in good condition, and be compatible with the type of universal waste stored in the containers.

2.3.8 Labeling Requirements

The proper labeling of waste helps to ensure that it is not mismanaged. It is a good idea to put one person in charge of making sure the wastes are correctly identified and labeled. Labeling also helps to protect the workers. If the contents of drums are not known, the chances of a worker being exposed to hazards or being injured are great. An explosion could occur if wastes that are incompatible are mixed with unknown wastes in a drum.

The USDOT regulations specify which containers, packaging, labels, and placards must be used for shipping hazardous materials. SQGs, LQGs, and universal waste handlers must also have the appropriate placards available for the transporter and post any special precautions like no smoking signs, etc., in the storage and loading areas.

Hazardous waste:
Labeling requirements differ for hazardous waste being stored on-site and that being shipped. More extensive information is required on labels for shipping. In addition to meeting the labeling requirements for containers, you may also want to clearly mark the storage area so employees know that hazardous waste is being stored at that location. For more information about these shipping requirements, go to the Michigan State Police, Motor Carrier Division at **www.michigan.gov/msp** and the USDOT at **hazmat.dot.gov** web sites. Also see Chapter 4.

It is permissible to accumulate up to 55 gallons of hazardous waste, or one quart of acutely hazardous waste, in a labeled storage container at the point of generation as long as the operator has control of the process generating the waste. This container must be labeled with the words “Hazardous Waste” and the waste number OR the chemical name of the contents, and be kept closed at all times except when waste is being added. It is generally referred to as a satellite container. There is no limit on how long the satellite container can be kept at its location as long as it is being used on a regular basis and the volume limit is not exceeded. Once the container volume exceeds the allowable amount, it must be labeled with that date (which would be considered the accumulation date) and the hazardous waste number if the chemical name was initially used on the label. Containers must be moved into the storage area within three days.

Labeling hazardous waste for storage:
When a waste is stored on-site, each container must be labeled with the following:

- The words “Hazardous Waste”;
- The hazardous waste number; and
- An accumulation date (meaning the date waste was first put into the container, unless it was a satellite container—then it would be the date the volume in the container met or exceeded the allowable amount).

Although not required, it is helpful to also label the storage containers with the common name of the waste with which it is being filled. For example, containers might be labeled with “Waste Roller Wash.”

You are not required to use any specific label to meet these requirements. You can stencil the information on the containers or you can purchase commercially-prepared labels. You may also use the shipping label as long as the above information is filled out. Make sure the label you use does not become unreadable or dissolve if exposed to the weather or hazardous materials. This can be a problem with containers holding solvents.

Labeling hazardous waste for shipment:
Hazardous waste must be shipped in containers acceptable for transportation and properly labeled. Each container of 110 gallons or less must have the hazardous waste number identifying the waste and the following statement:

“Hazardous Waste - Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency.”

A container must also have the headings “Generator Name and Address” and “Manifest Document Number,” with that information provided. This label and others are available from commercial firms including mail order companies. Properly labeled containers also include:

- Labels clearly identifying the type of waste and its hazards in that particular container;
- The accumulation date;
- Words or symbols for characteristics such as “flammable” and “corrosive” that are clear and understandable to employees; and
- Protection of the label from solvents and weather. This can be done by covering the label with varnish or clear packing tape and keeping the container under roof cover.

Your hazardous waste hauler should be able to assist you in properly labeling the containers for transport. Contact the USDOT for additional transportation requirements.

Labeling universal waste for storage and shipping:
You will need to label the individual universal waste (such as each thermostat) or the container holding the waste with the following:

- Electric lamps: the words “universal waste electric lamps,” or “waste electric lamps,” or used “electric lamps”;

- Batteries: the words “universal waste battery(ies),” or “waste battery(ies),” or “used battery(ies)”;

- Mercury and devices containing mercury (e.g., thermostats, mercury switches, mercury thermometers): the words “universal waste mercury thermometers,” or “waste mercury thermometers,” or “used mercury thermometers”;

- Pesticides: include the legible label that was on or accompanied the original product and the words “universal waste pesticide(s)” or “waste pesticide(s).” If the pesticide label is not readable, then use the appropriate label as required by USDOT.

Before shipping the universal waste to another universal waste handler, the originating handler must have made arrangements so that the shipment will be received. If the universal waste is a hazardous material under USDOT regulations, then those wastes would have to packaged, labeled, marked, and placarded according to the requirements under ***49 CFR Parts 172*** through ***180***.

A summary of hazardous, liquid, and universal waste requirements are summarized in Appendix 2-A located at the end of this chapter.

2.3.9 Selecting a Transporter and Treatment, Storage, and Disposal Facility

Ultimately, you, as the generator, are responsible for assuring proper transportation and disposal of your waste after it leaves your business. As such, you will need to prepare the shipment properly and hire reputable firms to handle the waste. It is important for you to select a waste transporter and treatment, storage and disposal facility that you are comfortable doing business with and who provides you the best services for your particular circumstances at a reasonable price.

Transporters can assist you by reviewing the manifest for correct and complete information, providing information on disposal facility options and costs, and providing for the safe and timely transport of your wastes. Transporters may be independent companies or may be affiliated with a treatment, storage and disposal facility. A listing of permitted and licensed transporters and TSDFs is available via the MDEQ’s web site (**www.michigan.gov/deq**), or look up companies in

the telephone directory's yellow pages under the heading "Waste Reduction, Disposal, and Recycling Service." There are requirements for transporters hauling either hazardous waste or liquid industrial waste. A transporter needs to be registered and permitted under both uniform transporter programs to haul either of these wastes.

You will want to select a treatment, storage and disposal facility that will be able to handle, treat and dispose of the waste you generate. A treatment, storage and disposal facility will accept only those types of wastes allowed by its permit or license. Special fees may be charged for small quantities of hazardous waste requiring extra handling by the facility. In addition, some facilities have their own requirements as to how they will accept waste material. For example, some companies will not accept hazardous waste in drums even though this is a common storage and transportation method.

Because transporter and treatment, storage and disposal facility services and costs are highly varied, you should contact and interview several facilities to obtain price estimates before making a selection. You might also want to tour the treatment, storage and disposal facility yourself to see its operations. Remember that as the generator you are ultimately responsible for how your waste is transported and disposed, so it is wise to choose a company on more than price. Use the following list of questions as a starting point for your interviews and compare the companies' responses before making your selection.

Questions to Ask Prospective Transporters and Treatment, Storage and Disposal Facilities

1. Is the hazardous waste transporter permitted and registered in Michigan, and does the treatment, storage, and disposal facility have an operating license?

2. Is the transporter permitted and registered to transport liquid industrial waste in Michigan? Does the destination facility operate according to the liquid industrial waste regulations?

3. What type and amount of insurance does the transporter or treatment, storage and disposal facility carry? Because you are ultimately responsible for the waste you generate, you should make sure that the company has insurance to cover accidents and environmental spills. To protect yourself financially, ask to see proof of the insurance.

4. If you are hiring an independent hauler, find out what treatment, storage and disposal facility the transporter uses for your type of waste. If the waste is going to a treatment facility before disposal, where is the ultimate place of disposal for the treated wastes?

5. Does the transporter or the facility offer special services for small volumes of waste? Some haulers might not service SQGs or CESQGs.

6. What must you do before your waste will be picked up by the transporter or accepted at the treatment, storage, and disposal facility?

7. Does the transporter or treatment, storage and disposal facility serve other businesses similar to yours? If they do, obtain telephone numbers of these business references and contact them to evaluate the services received.

8. Does the transporter deliver waste to the treatment, storage, or disposal facility on the same day that it was picked up? If not, also ask questions about the company/location where the waste will be stored. Hazardous waste must reach its final destination within ten days.

9. What steps has the transporter or treatment, storage, and disposal facility operator taken to avoid spills or leaks, and minimize the facility's own legal liability? You may want to note for your records the method of temporary waste storage used at a treatment or recycling facility. If your waste is going to a hazardous waste landfill, then also ask about their leachate control and groundwater monitoring provisions. Use this information when comparing companies. A company that costs more to take your waste but practices an extensive environmental protection program, may actually be cheaper in the long run than a company that initially costs less but does not practice adequate environmental protection. If contamination occurs, you can be held financially responsible for cleanup costs of the site.

10. Have any violations of state regulations occurred? Call the appropriate WHMD district office (Appendix C) to find out whether any transporter or treatment, storage, and disposal facility you are considering has been subject to fines or citations for violations of state regulations. Most transporter and treatment, storage and disposal facility files are available for public review. Transporter files and treatment, storage, and disposal facility inspection files would be kept at the WHMD district office responsible for the area where the hauling business is located. Contact the district office to confirm the appropriate office and set up an appointment. Call the WHMD Lansing office (Appendix C) for information regarding out-of-state haulers, for treatment, storage, and disposal facility licensing information, and to set up an appointment to review treatment, storage and disposal facility licensing files.

11. Will they enter into a written contract with you? It is a good idea to have a written contract for liability protection clearly identifying what specific services that company will provide. Be cautious of firms who do not want to offer a written contract for services.

If you are a CESQG, you are not required to hire a permitted and registered hazardous waste transporter or dispose of your hazardous waste at a treatment, storage, and disposal facility. It is recommended that you use a hazardous waste disposal facility or recycle your waste. In a few Michigan areas, the local household hazardous waste collection programs accept hazardous waste from CESQGs for a fee. A list of local collection sites is available at **www.michigan.gov/deq**. Your waste that is not considered a liquid waste (passes the paint filter test) can be disposed of at a sanitary landfill if the landfill authority will accept it. Your liquid waste must be hauled by a permitted and registered transporter, unless you haul your own generated waste and meet the requirements outlined in Chapter 2.3.6.

2.3.10 Disposing Hazardous Waste On-Site

You may not dispose of hazardous waste on your site unless you have obtained a construction permit or operating license for disposal from the WHMD. Under limited circumstances, it might be legal to dispose of certain types of waste into a sanitary sewer or on your site without a treatment, storage and disposal facility permit. See Chapter 3 on wastewater management for more information. Contact your local wastewater treatment facility and your WHMD district office (Appendix C) for information about wastes from your facility that may be disposed of in this manner.

2.3.11 Employee Emergency Training

This section discusses emergency training requirements under the hazardous waste regulations. Other regulations also require employees to be trained on proper waste handling and how to effectively respond to emergencies in a manner that protects their safety and the environment (see Chapter 17 for Hazardous Waste Operations and Emergency Response [HAZWOPER] requirements). Training involves familiarizing employees with emergency procedures; emergency equipment; emergency systems (such as communication or alarm systems, response to fires or explosions, shutdown of operations, response to unplanned sudden or non-sudden releases of hazardous waste); and their roles in implementing the hazardous waste contingency plan relevant to their positions.

Training is required for all employees who are involved with hazardous waste management, such as personnel at the areas of generation, their supervisors, hi-low drivers who move the hazardous waste, shipping dock employees, emergency coordinators, or anyone else who handles the waste. You can tailor your training specifically to the hazardous waste procedures relevant to your facility and employee involvement. In addition to having emergency training requirements, hazardous waste generators and universal waste handlers have release planning, notification, and response requirements. See Chapter 7 for details of those requirements.

Hazardous waste:

CESQGs do not have specific training requirements under the hazardous waste regulations.

SQGs can provide emergency training in an informal manner or concurrently with other training sessions. Written records are not required to be kept although it is encouraged. There is no stipulated review period.

LQGs have specific employee training requirements including keeping written records of employee training. Keep training records for current employees until facility closes. Keep training records for employees who left the company at least three years after the last date they worked. These records must be kept at least three years. Hazardous waste training can be provided in a classroom setting or during on-the-job instruction by an expert or someone with significant experience in hazardous waste management. It is necessary to have a written description of the type and amount of training. Employees must be trained within six months after starting work on

a job involving hazardous waste and then receive annual training. This annual training means during the calendar year, not necessarily one year from the date of the initial training. This training can be combined with other training sessions as long as a portion of the training is clearly devoted to hazardous waste requirements. Training under the Hazard Communication Employee Right-to-Know Standard (Right-to-Know) alone is not sufficient to meet the hazardous waste training requirements (see Chapter 9). Order the *"Personnel Training Requirements for Generators of Hazardous Waste"* handout for more information on training requirements.

Some common hazardous waste training violations include:

- ✔ Missing or incomplete documented records of required training for LQGs;
  - Job title omitted
  - Job description omitted
  - Employee name omitted
- ✔ Missing written training description for LQGs;
- ✔ Failing to have employees trained annually for LQGs;
- ✔ Using another required emergency training program which does not have a portion clearly devoted to the hazardous waste requirements.

Universal waste:

Small Quantity Handlers and *Large Quantity Handlers* must inform employees who handle or have responsibility for managing universal waste about the proper handling and emergency procedures relative to their responsibilities and appropriate for the type of universal waste handled at that facility.

Appendix 2-A

SUMMARY OF HAZARDOUS WASTE (HW), UNIVERSAL WASTE (UW), & LIQUID INDUSTRIAL WASTE (LIW) REQUIREMENTS
See the referenced sections, regulations, and Chapter 2.3.2 for additional requirements for specific wastes.

Requirements:	Generators of LIW	CESQG of HW	SQG of HW	LQG of HW	Large Quantity Handler of UW	Small Quantity Handler of UW
	See Table 2.2 for regulated amounts for Conditionally Exempt Small Quantity Generator (CESQG), Small Quantity Generator (SQG), and Large Quantity Generator (LQG) of hazardous waste				Accumulates less than 11,000# UW	Accumulates 11,000# or more of UW
Identify wastes generated at facility. Keep records of waste evaluations, laboratory results, etc. for at least 3 years after the waste is shipped for treatment, storage, or disposal. (See Chapters 2.1, 2.2, 2.3.1, and 2.3.2)	✓	✓	✓	✓	✓	✓
Consider methods to reduce volume and toxicity of waste generated to degree economically practicable (see Chapter 12) and sign certification of hazardous waste minimization on manifest (see Chapter 2.3.6)			✓ Make good faith effort to minimize waste generation and select best waste management method that they can afford	✓ Required to have hazardous waste minimization program. Select currently available treatment, storage, or disposal method that minimizes present and future threats.		
Determine generator status (see Chapter 2.3.4) and follow applicable regulations	✓	✓	✓	✓	✓	✓
Obtain site identification number if required and facility doesn't already have one. Notify or update WMD of waste activities. (See Chapter 2.3.5)	✓	✓	✓	✓		✓
Correctly label and accumulate waste on-site. Different labeling and time limits for satellite accumulation areas. (See Chapters 2.3.7 & 2.3.8)	✓	✓ See Table 2.2 for accumulation time and weight limits. Satellite accumulation area must be at or near point of generation and under control of operator. Accumulate less than 55 gallons in containers. When reach 55 gallons, move containers to hw accumulation area within 3 days.			✓ 1 year time limit	✓ 1 year time limit
Secondary containment (not required for satellite accumulation) (See Chapter 2.3.7.b)	Other regulations for oils may require containment.		✓ required if accumulate over 2,200# of LIQUID nonacute HW and any F020, F021, F022, F023, F026, & F027 waste	✓ required for all liquid HW and any F020, F021, F022, F023, F026, & F027 waste ✓ containers holding solid HW managed so not in contact with accumulated precipitation liquids		
Meet USDOT shipping requirements including packaging, labeling, and marking. (See Chapter 2.3.8)	✓	✓	✓ also have necessary placards available for transporter	✓ also have necessary placards available for transporter	✓ also have necessary placards available for transporter	✓ also have necessary placards available for transporter

Appendix 2-A

SUMMARY OF HAZARDOUS WASTE (HW), UNIVERSAL WASTE (UW), & LIQUID INDUSTRIAL WASTE (LIW) REQUIREMENTS
See the referenced sections, regulations, and Chapter 2.3.2 for additional requirements for specific wastes.

Organic Air Emissions (See Chapter 2.3.7)					✓		
MANIFESTS	Use appropriate manifest and hire permitted and registered haulers unless not required (see Chapters 2.3.6 and 2.3.9). Fill out & sign manifest according to instructions and applicable USDOT regulations. Send manifest copies, or other USDOT shipping papers, if required for solid UW (see Chapter 2.3.6), with transporter. Keep copy of signed manifests by generator, transporter, & TSDF, or other waste shipping papers, for at least 3 years after shipment	✓ manifest LIW	✓ manifest liquid HW as LIW	✓ manifest LIW and HW ✓ manifest as LIW if have contractual agreement (see Chapter 2.3.5.a)	✓ manifest LIW and HW	✓ shipping papers if USDOT hazardous material, manifest liquid UW as LIW.	shipping papers if USDOT hazardous material, manifest liquid UW as LIW.
		If waste is shipped to MI treatment, storage and disposal company, must use DEQ's form EQP5110 for both liquid industrial waste and hazardous waste shipments. If shipping out-of-state, check with receiving state what they require. Not all states have same UW requirements as MI.					
	Send copy of manifest to WMD by 10th of month after shipment when using either MI or another state's manifest, and if shipment out-of-state, also met that state's requirements.	✓	✓	✓	✓		
	Receive copy of manifest back from TSDF or destination facility within listed timeframes after date of shipment.	Contact hauler and destination facility if haven't received copy within 35 days, receive copy within 45 days	Contact hauler and destination facility if haven't received copy within 35 days, receive copy within 45 days	60 days	45 days		
	If did not receive copy back within above time frame, send exception reports (include copy of manifest and letter summarizing your contacts with transporter and TSDF about locating shipment).	To: DEQ WHMD MANIFEST UNIT PO BOX 30038 LANSING MI 48909-7938	To WHMD (see address to the left)	To WHMD (see address to the left) and EPA REGION V SHARON KIDDON (DR-7J) 77 WEST JACKSON BLVD CHICAGO IL 60604	To WHMD and EPA (see addresses to the left)		
	If shipped to out-of-state facility, send a copy of the signed manifest you received back from TSDF to WMD by 10th of month after received signed copy.	✓	✓	✓	✓		
If TSDF rejects hazardous waste shipment, generator must designate another facility or instruct transporter to return load, and provide transporter with who authorized that change and their phone number. (See R 299.9304(7) for additional requirements)		✓		✓	✓		
Prepare and submit LDRs to TSDF as required with first shipment of that waste. Keep copy of LDRs for at least 3 years after last shipment of that waste. (See Chapter 2.3.6.c).				✓	✓		

Appendix 2-A

SUMMARY OF HAZARDOUS WASTE (HW), UNIVERSAL WASTE (UW), & LIQUID INDUSTRIAL WASTE (LIW) REQUIREMENTS
See the referenced sections, regulations, and Chapter 2.3.2 for additional requirements for specific wastes.

Other reporting and notifications. This does not include exportation requirements.				✓ Biennial hazardous waste report (See Chapter 2.3.6.d).		
	Reporting for facilities subject to the Annual Wastewater Reporting Program who discharge hazardous waste through municipal wastewater treatment plants, or under a NPDES or groundwater discharge permit, or ship wastes off-site that contain critical materials (see Chapter 3.11)					
	Notify WMD of used oil aggregation points and collection centers, including locations taking Do-it-Yourselfer used oil from public (Chapter 2.3.5)					
Contingency Planning, Emergency Preparedness and Prevention (See Chapter 7.1.2)	Know how to respond to emergency, recommend posting emergency info	Know how to respond to emergency, recommend posting emergency info	✓ Emergency info posted, emergency coordinator, equipment, and arrangements with responders	✓ Written plan required, emergency coordinator, equipment, arrangements with responders, etc	Know how to respond to emergency	Know how to respond to emergency
Personnel Training (See Chapters 2.3.11, 7, 9, and 14)	Know how to handle wastes	Know how to handle wastes	✓ Informal HW training, records not required but recommended, no review period	✓ Written records of annual HW training. Keep current employee records until facility closes. Keep former employee records for at least 3 years after they quit working.	Know how to handle UW	Know how to handle UW

2.4 Where To Go For Help

SUBJECT	**Confidential and free waste reduction assessments**
CONTACT	DEQ, Environmental Science and Services Division, RETAP Coordinator
TELEPHONE	(800) 662-9278
SUBJECT	**Hazardous waste and liquid industrial waste permitted and registered transporters**
CONTACT	DEQ, Waste and Hazardous Materials Division, Hazardous Waste Program
TELEPHONE	(734) 432-1256
WEB SITE	**www.michigan.gov/deq** "Waste" "Hazardous & Liquid Industrial Waste Transportation"
SUBJECT	**Hazardous waste licensed treatment, storage, and disposal facilities**
CONTACT	DEQ, Waste and Hazardous Materials Division, Hazardous Waste Program
TELEPHONE	(517) 373-9875
WEB SITE	**www.michigan.gov/deq** "Waste" "Hazardous Waste" "Hazardous Waste Management"
SUBJECT	**Household hazardous waste collection programs**
CONTACT	DEQ, Environmental Science and Services Division
WEB SITE	**www.michigan.gov/deq** "Pollution Prevention" "Recycling"
SUBJECT	**Ordering Hazardous Waste Manifests**
CONTACT	DEQ, Waste and Hazardous Materials Division, Manifest Unit
TELEPHONE	(517) 373-7314
WEBSITE	**www.michigan.gov/deq** "Waste" "Hazardous Waste" "Hazardous Waste Management"
PUBLICATIONS	1. Uniform Hazardous Waste Manifest (EQP 5110)
SUBJECT	**Liquid, solid, and hazardous waste regulation questions and publications**
CONTACT	DEQ, Waste and Hazardous Materials Division, District Office See Appendix B for a listing of district office telephone numbers
WEBSITE	**www.michigan.gov/deq** "Waste"
SUBJECT	**Hazardous waste identification number and biennial reporting**
CONTACT	DEQ, Waste and Hazardous Materials Division
TELEPHONE	(517) 335-5035
WEB SITE	**www.michigan.gov/deq** "Waste" "Hazardous Waste" "Hazardous Waste Management"
PUBLICATIONS	1. Hazardous Waste Biennial Report 2. Site Identification Form (EQP 5150) 3. Michigan Hazardous Waste Permit Part A Form (EQP 5111)

SUBJECT	**Liquid, solid, and hazardous waste regulation questions and publications**
CONTACT	DEQ, Environmental Science and Services Division, Environmental Assistance
TELEPHONE	Center (800) 662-9278
WEB SITE	**www.michigan.gov/deq** "Assistance & Support Services"
PUBLICATIONS	1. Directory of Environmental Testing Laboratories 2. Emergency Information Poster 3. Guide to Understanding Secondary Containment Requirements in Michigan 4. Manifest Tracking Log 5. Personnel Training Requirements for Fully Regulated Generators of Hazardous Waste 6. Recycled Materials Market Directory 7. Required Weekly Hazardous Waste Maintenance Checklist
SUBJECT	**Solid waste planning agency contacts**
CONTACT	DEQ, Waste and Hazardous Materials Division, Solid Waste Program
TELEPHONE	(517) 335-4035
WEB SITE	**www.michigan.gov/deq** "Waste" "Solid Waste" "Solid Waste Planning"
SUBJECT	**Hazardous Materials Transportation compliance assistance publications**
CONTACT	Michigan State Police, Motor Carrier Division
TELEPHONE	(517) 336-6580
WEB SITE	**www.michigan.gov/msp** "Services to Governmental Agencies" "Motor Carrier Division" "Hazardous Materials"
SUBJECT	**Hazardous material transportation**
CONTACT	U.S. Department of Transportation
TELEPHONE	(800) 467-4922 or (517) 377-1866
WEBSITE	**hazmat.dot.gov**
SUBJECT	**Federal waste compliance assistance publications**
CONTACT	U.S. Environmental Protection Agency
WEB SITE	**www.epa.gov/epaoswer/osw/index.htm** (click on "Publications")
PUBLICATIONS	1. RCRA Orientation Manual 2. RCRA, Superfund, and EPCRA Hotline Training Modules
SUBJECT	**Materials Safety Data Sheets**
WEB SITE	**www.hazard.com**
SUBJECT	**PCB information**
WEBSITE	**www.epa.gov/pcb**
SUBJECT	**Waste recycling and disposal options**
CONTACT	DEQ, ESSD Recycling Coordinator
TELEPHONE	(800) 662-9278
WEB SITE	**www.michigan.gov/deq "Pollution Prevention" "Recycling"**
PUBLICATIONS	1. Material Exchange: Reduce Disposal Costs, Increase Your Profits 2. Recycled Materials Market Directory